Figure 2-8
Specific Plan Areas Subject to Zone Changes

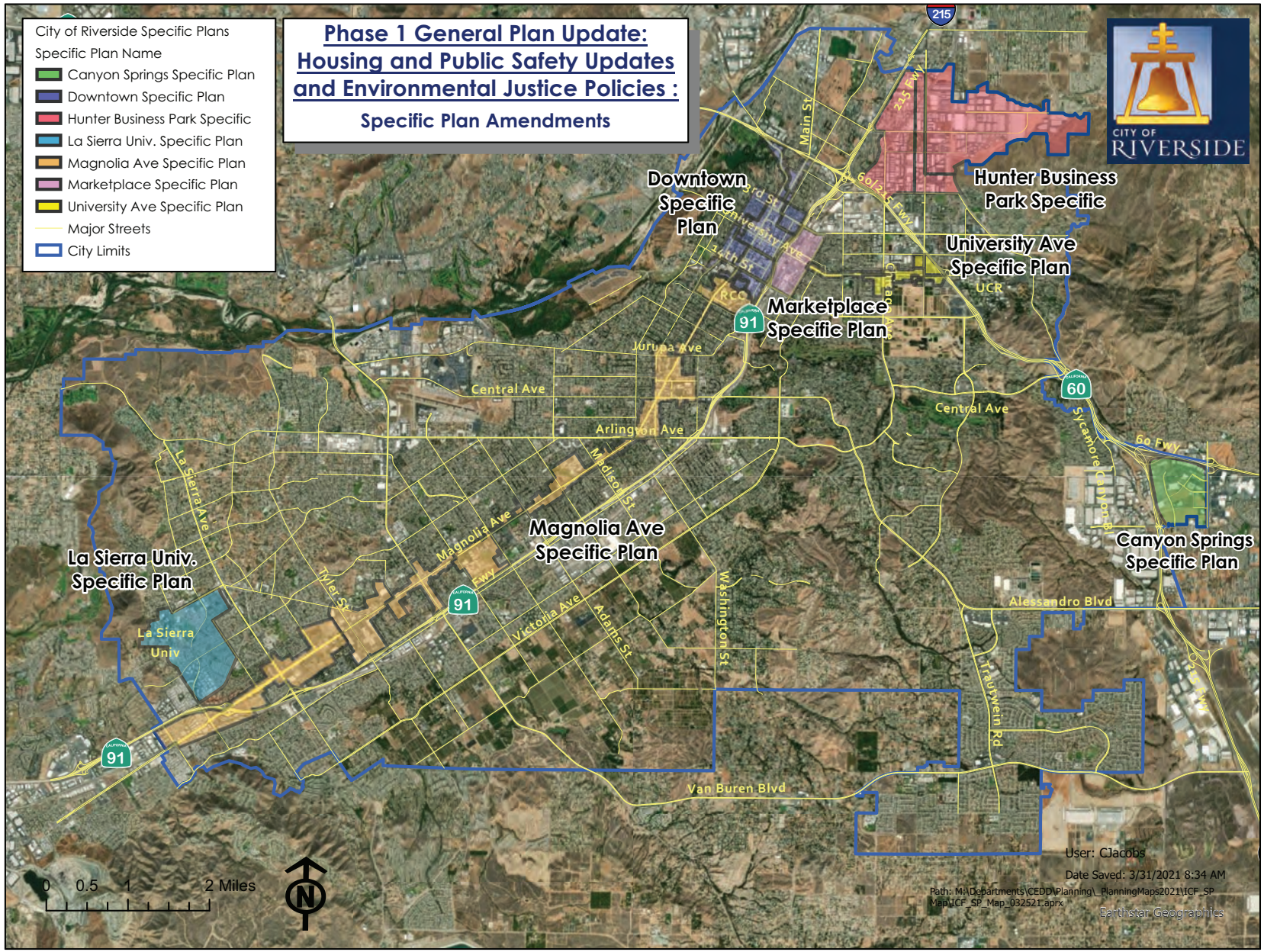


Figure 2-9

Downtown Specific Plan Land Use Districts

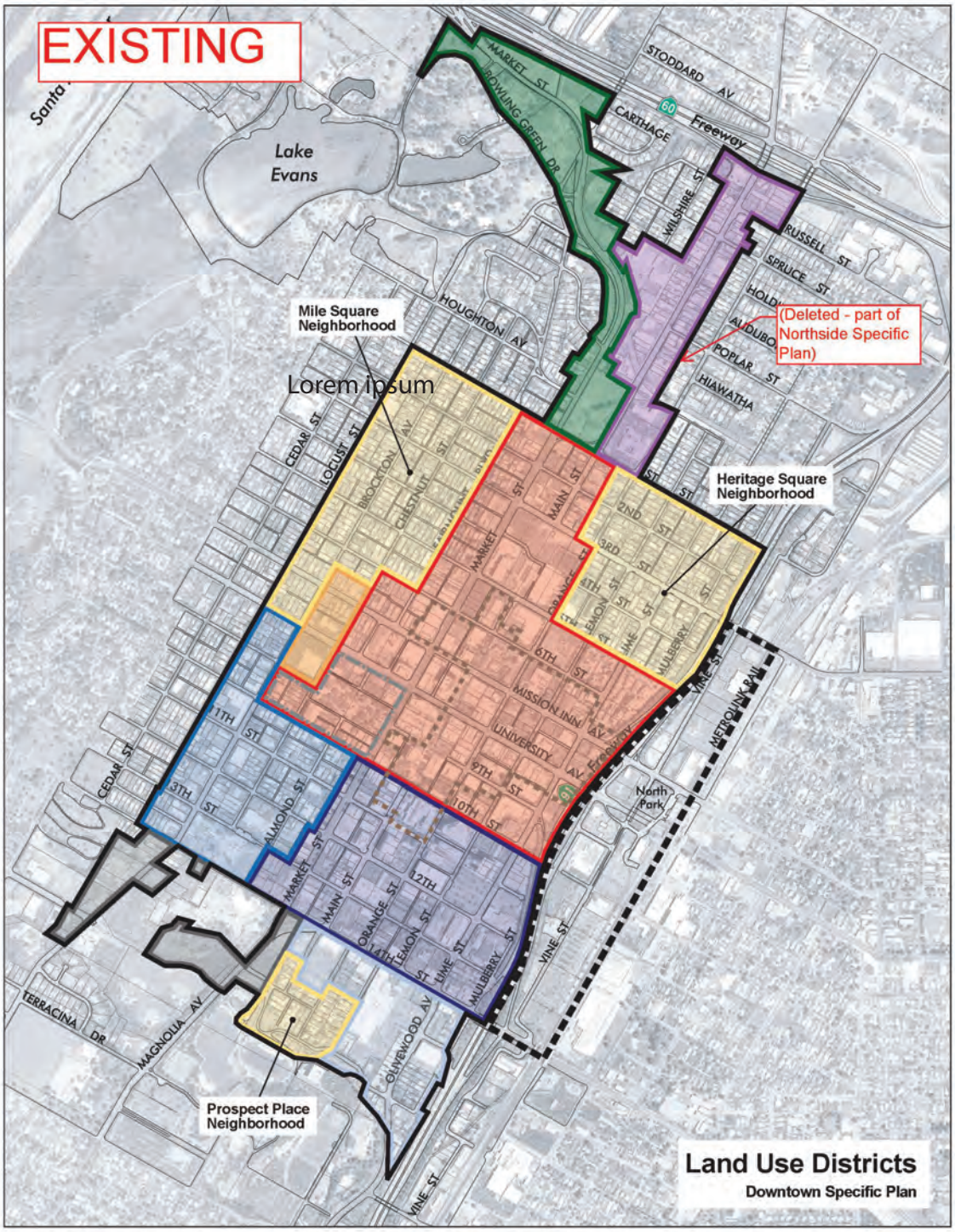


Figure 2-10

Downtown Specific Plan Proposed Map Changes

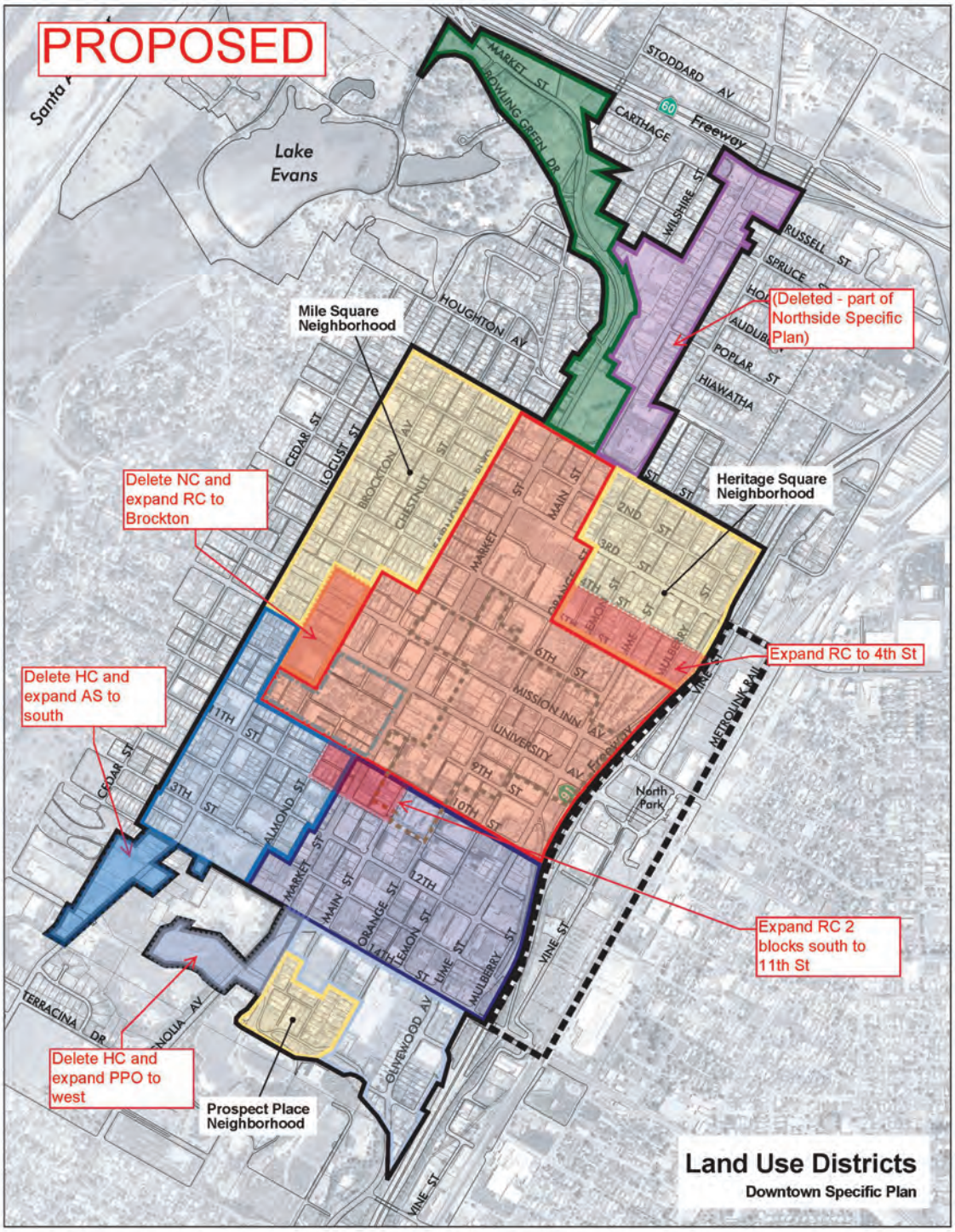
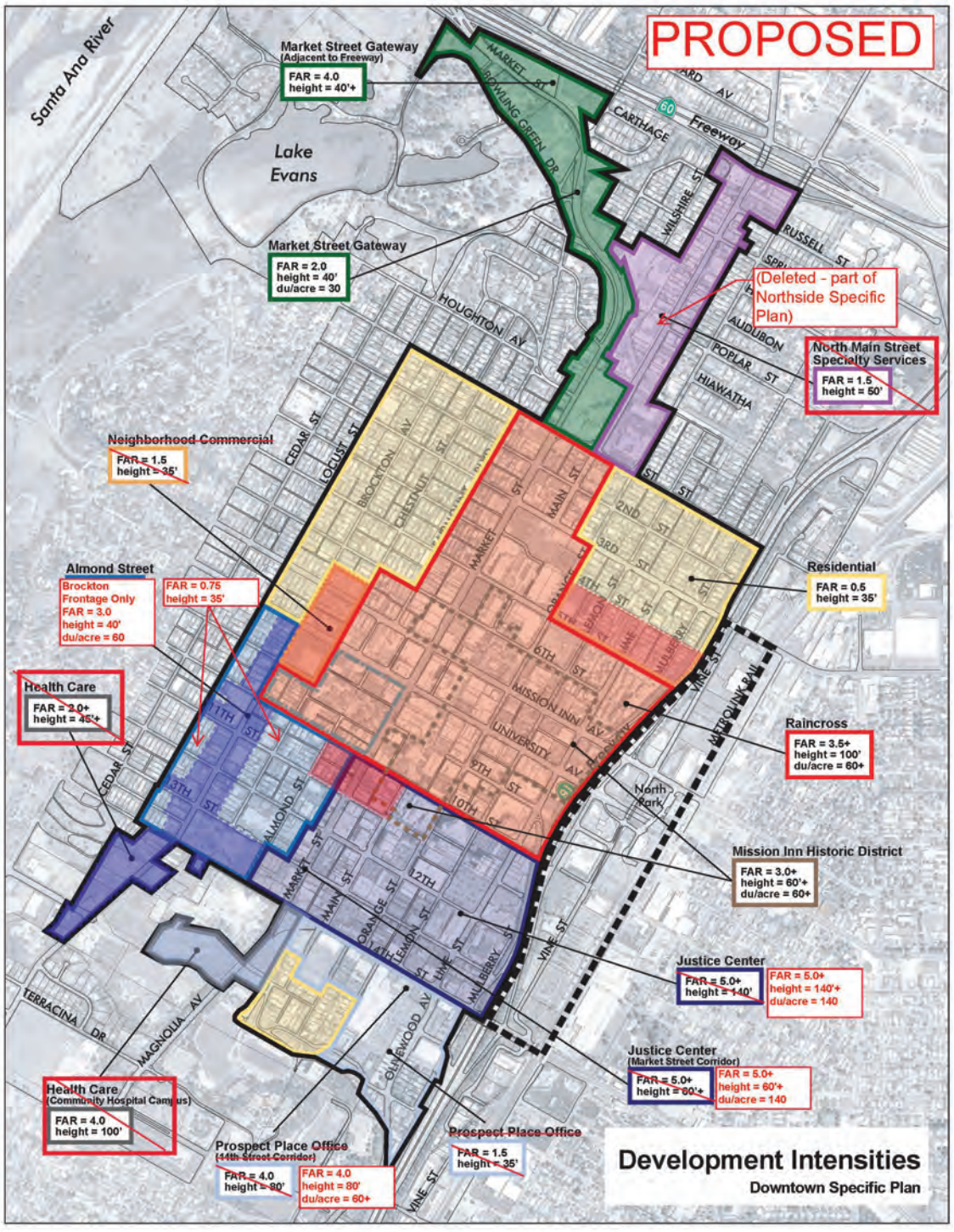


Figure 2-11

Downtown Specific Plan Proposed Densities



- Preserve and enhance historic buildings and elements
- Beautify the entrances to Downtown and University Avenue
- Provide additional commerce and employment opportunities for the Eastside community
- Complement the redevelopment efforts occurring within the Downtown area

Proposed amendments would be to Figures 4, *Land Use Plan*; 4a, *General Plan Designations*; 5, *Phasing Plan*; and 8, *Sub Area Plan*, to add approximately 4.72 acres to the Mixed Use Marketplace Sub Area.

The **Canyon Springs Business Park Specific Plan** is a regionally oriented mixed-use development that combines commercial, office, entertainment, and recreational uses within an area of approximately 222 acres. This plan includes 10 planning areas for a commerce center of retail commercial, office, and recreational uses with appropriate public, quasi-public, and private services and facilities necessary to accommodate shopping, employment, service, and recreational needs. Proposed amendments would be to Section 1, *Introduction and Background*, to incorporate approximately 34.4 acres of mixed-use development within Planning Area 1 and to make other non-substantive technical and clarifying changes as necessary.

The **Hunter Business Park Specific Plan** is an approximately 1,300-acre planned industrial park northeast of Downtown. The Specific Plan includes an Industrial Area Framework that establishes the basic structure of the development and concepts for open space, public services, land use, and circulation. Proposed amendments would be to Chapter III, *Development Standards and Design Guidelines*, to incorporate 1.38 acres of mixed-use development within the General Industrial subdistrict.

The **La Sierra University Specific Plan** is approximately 531 acres in the western portion of the City. The Specific Plan envisions a mixed-use community that allows for the expansion of the La Sierra campus and development of the university's surplus lands. It includes a diverse mix of residential types and densities to provides opportunities for faculty, staff, and retirees from the La Sierra University community, and others. Proposed amendments would be to Chapters 1 through 5 (*Introduction, Existing Conditions and Planning Context, Overall Plan and Polices, Land Use Regulations and Development Standards,* and *Design Standards and Guidelines*) to accommodate multi-family and mixed-use development on approximately 22.9 acres and to make other non-substantive technical and clarifying changes as necessary.

2.2.6 Maximum Allowable Development under the Project

Table 2-2 summarizes maximum housing development that could occur on the Opportunity Sites identified by the City and in the other areas proposed for increased residential and nonresidential development capacity under the Project (i.e., portions of the Downtown Specific Plan and the Innovation District).

Table 2-2. Summary of Potential Housing Development on Opportunity Sites

Ward	Total Acreage	Maximum DUs Allowed
Ward 1	289	16,808
Ward 2	95	3,770
Ward 3	89	2,309

Ward	Total Acreage	Maximum DUs Allowed
Ward 4	50	2,203
Ward 5	82	3,375
Ward 6	111	2,066
Ward 7	104	1,033
Total	**820**	**31,564**

Source: City of Riverside 2021.

With the removal of 389 existing dwelling units, implementation of this Project could result in a net increase of up to 31,175 DUs over existing conditions.

Rezoning some of the Opportunity Sites would also result in nonresidential development in those areas to be designated as mixed-use. Mixed-use zones include:

- Mixed-Use Urban (MU-U/MU-U-TA[4])
- Mixed-Use Village (MU-V/MU-V-TA)

Mixed-use zoning permits either residential, nonresidential, or combined residential and nonresidential development. To estimate the proportion of each type of development that would result from the Opportunity Sites identified for mixed-use zoning, the analysis assumed that 33 percent of sites would develop with nonresidential uses, 33 percent would develop with residential uses, and 34 percent would develop with a mix of residential and nonresidential uses. Of the 34 percent that would develop with a mix of uses, it was further assumed that the resulting development would comprise 80 percent residential uses and 20 percent nonresidential uses by floor area. Residential floor area was then converted to an estimated number of DUs by assuming an average unit size of 1,050 square feet. Table 2-3 summarizes the total amount of nonresidential square footage and number of DUs that could be developed in the proposed mixed-use zones by ward.

Table 2-3. Potential Development in Mixed-Use Zones by Ward

Ward	Total Residential (DUs)	Total New Nonresidential (Square Feet)
1	1,895	117,739
2	3,509	418,716
3	749	333,210
4	546	200,821
5	1,730	463,098
6	2,163	825,975
7	1,485	461,053
Total	**12,077[1]**	**2,820,612**

Source: City of Riverside 2021.
[1] This total is included in the total in Table 2-2.

[4] The TA designation means Transit Adjacent, applies to parcels within 0.5 mile of a transit stop, and provides a density bonus.

The City is planning for a maximum allowable development under the Project (31,564 units) to meet the City's minimum RHNA obligation (18,458 units with a 30 percent No Net Loss buffer for approximately 24,000 units) across all wards.

This is because the maximum allowable development calculations used for the purposes of this EIR assume that all Opportunity Sites will develop up to 100 percent of their zoned capacity. State housing element law, on the other hand, requires a more conservative estimate of development potential based on realistic development capacity to account for factors like site constraints, market fluctuations, and other variables. To account for this, the Housing Element Update assumes that any given Opportunity Site will only develop to approximately 75 percent of the maximum development capacity established by zoning.

2.3 Other Public Agencies Whose Review or Approval Is Required

In addition to City Council review and adoption of the Project and the EIR, other agencies will be involved for a review and/or adoption of Project-related element updates:

- C**alifornia Department of Housing and Community Development (HUD)** will review the Housing Element Update prior to its adoption and then certify it after.
- **California Geological Survey of the Department of Conservation** will review the Public Safety Element Update prior to its adoption.
- **State Board of Forestry and Fire Protection** will review the Public Safety Element Update prior to its adoption.
- **County of Riverside Fire Department** will review the Public Safety Element Update prior to its adoption.

2.4 Assembly Bill 52/Senate Bill 18 Consultation

The City sent out Assembly Bill 52 and SB 18 consultation notices to tribes to initiate consultation on April 1, 2021. The full list of tribes that were contacted is presented in Section 3.13. The following tribes responded with requests to consult:

- Soboba Band of Luiseño Indians
- Pechanga Cultural Resources Department
- Rincon Band of Luiseño Indians
- San Manuel Band of Mission Indians

2.5 Other Environmental Reviews Incorporated by Reference in This Review

- *Riverside General Plan 2025* (City of Riverside 2019)

- *Final Program Environmental Impact Report for the City of Riverside General Plan and Supporting Documents* (City of Riverside 2007)
- *2014–2021 Final Housing Element Update Housing Implementation Plan Environmental Impact Report* (Michael Baker International 2017)
- *Northside Neighborhood & Pellissier Ranch Specific Plan Final Program Environmental Impact Report* (City of Riverside 2020).
- Title 19, *Zoning Code*
- Title 20, *Cultural Resources*

Chapter 3
Impact Analysis

3.01 Introduction

This chapter examines the environmental and regulatory setting, evaluates the potential significant environmental impacts, and identifies appropriate mitigation measures for each environmental element discussed in this Draft EIR.

3.02 Environmental Elements Analyzed in the EIR

As discussed in Chapter 1, *Introduction and Scope of Environmental Impact Report*, the scope of this EIR is based on the input from the public, as well as from responsible and affected agencies through the EIR scoping process. This chapter of the EIR addresses 14 environmental resources that were determined to be potentially significant in the Notice of Preparation and Initial Study and scoping process. These environmental elements are addressed in the following sections:

- Section 3.1, Air Quality
- Section 3.2, Biological Resources
- Section 3.3, Cultural Resources
- Section 3.4, Paleontological Resources
- Section 3.5, Greenhouse Gas Emissions
- Section 3.6, Hazards and Hazardous Materials
- Section 3.7, Land Use and Planning
- Section 3.8, Noise
- Section 3.9, Population and Housing
- Section 3.10, Public Services
- Section 3.11, Recreation
- Section 3.12, Transportation
- Section 3.13, Tribal Cultural Resources
- Section 3.14, Utilities and Service Systems
- Section 3.15, Effects Not to Be Found Significant
- Section 3.16, Cumulative Impacts

Sections 3.1 through 3.14 provide a detailed discussion of the environmental setting, regulatory setting, methodology and thresholds of significance, impacts associated with the Project, and mitigation measures designed to reduce significant impacts where required.

Topics required by CEQA in addition to the resource topics addressed in Chapter 3 are addressed in Section 3.15, *Effects Not Found to Be Significant*; Section 3.16, *Cumulative Impacts*; Chapter 4, *Alternatives*; and Chapter 5, *Other CEQA Considerations*.

- **Section 3.15, Effects Not Found to Be Significant**, describes topics that were found to have no or less-than-significant impacts. Based on the Notice of Preparation and Initial Study (refer to Appendix A), no or less-than-significant impacts involving the following environmental topics are anticipated:
  - Aesthetics
  - Agricultural and Forestry Resources
  - Energy
  - Geology and Soils
  - Hydrology and Water Quality
  - Mineral Resources
  - Wildfire
- **Section 3.16, Cumulative Impacts**, describes potential environmental changes to the existing physical conditions that may occur as a result of the incremental impact of the Project when added to other closely related past, present, and reasonably foreseeable, planned, and approved future projects. "Cumulatively considerable" means that the incremental effects of the Project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (State CEQA Guidelines Section 15065(a)(3)). Sections 15126 and 15130 of the State CEQA Guidelines provide that EIRs consider the significant environmental effects of a proposed project, as well as cumulative impacts. "Cumulative impacts" are two or more individual effects that, when considered together, are considerable or compound and increase other environmental impacts (State CEQA Guidelines Section 15355).

3.03 CEQA Baseline

An EIR assesses the significance of a project's impacts in comparison to a baseline, consisting of the existing physical environmental conditions at or near a project site. As stated in the State CEQA Guidelines, Section 15125(a), CEQA provides that the existing environmental setting at the time of publication of the Notice of Preparation establishes the baseline for determining whether a project's environmental impacts may be significant. The City of Riverside published the Notice of Preparation for the Project on April 5, 2021.

3.04 Impacts and Mitigation

Each section in Chapter 3 includes an evaluation of the direct and reasonably foreseeable indirect impacts associated with implementation of the Project. Under CEQA, the significance of the impact needs to be described. A significant impact on the environment is defined as a substantial, or potentially substantial, adverse change in the environment (Public Resources Code Section 21068). The impact findings used in this document are as follows.

- **No Impact**. This impact would cause no discernible change in the environment as measured by the applicable significance criteria; therefore, no mitigation would be required.
- **Less than Significant**. This impact would cause no substantial adverse change in the environment as measured by the applicable significance criteria; therefore, no mitigation would be required.
- **Significant**. This impact would cause a substantial adverse change in the physical conditions of the environment. Impacts determined to be significant based on the applicable significance criteria fall into two categories: (1) those impacts for which there is feasible mitigation available that would avoid or reduce the environmental impacts to less-than-significant levels, and (2) those impacts for which there is either no feasible mitigation available or for which, even with implementation of feasible mitigation measures, there would remain a significant impact on the environment. Those impacts that cannot be reduced to a less-than-significant level by mitigation are identified as *significant and unavoidable*.
- **Significant and Unavoidable**. This impact would cause a substantial adverse change in the environment and cannot be avoided or mitigated to a less-than-significant level if the Project is implemented. Even if the impact finding is still considered significant with the application of mitigation, the applicant or implementing agency is obligated to incorporate all feasible measures to reduce the severity of the impact.

Mitigation measures are proposed in this EIR to meet CEQA's specific requirement that, whenever possible, agency decision-makers adopt feasible mitigation to reduce a project's significant impacts to a less-than-significant level. The term *mitigation* denotes measures required to reduce residual environmental impacts after considering the application of all policies and actions set forth in the Housing and Public Safety Element Updates.

Each impact statement for the Project within each resource section includes any mitigation measures recommended to reduce the impact.

3.1 Air Quality

3.1.1 Introduction

This section describes the environmental and regulatory setting for air quality for the Project, discusses local and regional air quality impacts that would result from the Project, determines if there are significant impacts, and provides mitigation measures that would avoid or reduce these impacts to less-than-significant levels, where feasible. The City of Riverside (City) and identified Opportunity Sites for potential future development are the areas evaluated in this EIR for air quality. The analysis methods, data sources, significance thresholds, and terminology used are described. Details on the location of the Project and a description of Project activities are included in Chapter 2, *Project Description*, of this EIR. Refer to Section 3.5, *Greenhouse Gas Emissions*, for a discussion of greenhouse gas (GHG) emissions.

3.1.2 Environmental Setting

Climate and Atmospheric Conditions

Regional

The City is in the South Coast Air Basin (Basin), an area covering approximately 6,745 square miles and bounded by the Pacific Ocean to the west and south and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area in Riverside County. The terrain and geographical location determine the distinctive climate of the Basin, which is a coastal plain with connecting broad valleys and low hills.

The Southern California region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (i.e., weather and topography) as well as human-made influences (i.e., development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of pollutants throughout the Basin, making it an area of high pollution potential.

The greatest air pollution impacts in the Basin occur from June through September and are generally attributed to the large amount of pollutant emissions, light winds, and shallow vertical atmospheric mixing. These conditions frequently reduce pollutant dispersion, thereby causing elevated air pollution levels. Pollutant concentrations in the Basin vary with location, season, and time of day; ozone (O_3) concentrations, for example, tend to be lower along the coast, higher in the near-inland valleys, and lower in the far-inland areas of the Basin and adjacent desert.

Local Climate

Data from two climate monitoring stations, Riverside Fire Station 3 (COOP 047470) and Riverside Citrus Experiment Station (COOP 047473), within the City were used to characterize the climate conditions for the Project. Fire Station 3 monitoring station is centrally located within the City on Riverside Avenue, south of Central Avenue, and to the west of State Route 91. The Citrus Experiment monitoring station is in the northeastern portion of the City on Sedgwick Avenue, south of Pennsylvania Avenue, and to the east of State Route 91.

At the Fire Station 3 climate monitoring station between 1893 and 2016, the average summer high and low temperatures were 91.9 degrees Fahrenheit (°F) and 58.0°F, respectively. The average winter high and low temperatures were 67.6°F and 39.8°F, respectively. Rainfall varies year to year, with an annual average of 10.21 total inches and an average of 34 days with measurable rainfall (greater than or equal to 0.01 inch) (WRCC 2021a).

At the Citrus Experiment monitoring station between 1948 and 2009, the average summer high and low temperatures were 91.6°F and 59.5°F, respectively. The average winter high and low temperatures were 67.3°F and 42.1°F, respectively. Rainfall varies from year to year with an annual average of 9.86 inches and an average of 36 days with measurable rainfall (greater than or equal to 0.01 inch) (WRCC 2021b).

The closest wind monitoring station is within the City at the Riverside Municipal Airport. Wind patterns in the Project vicinity arise primarily from the northwest with seasonal and diurnal variations resulting during Santa Ana wind events and winter storms. Average wind speeds at the Riverside Municipal Airport average 8 miles per hour (Windfinder 2021).

Local Air Quality

The South Coast Air Quality Management District (SCAQMD) has divided the Basin into general forecast and air monitoring areas and maintains a network of air quality monitoring stations throughout. The City is in the Metropolitan Riverside County source receptor area (SRA 23), and the monitoring station representative of the area is the Riverside-Rubidoux station at 5888 Mission Boulevard in Riverside County, approximately 1.5 miles northwest of the City. The air pollutants measured at the Riverside-Rubidoux station site include O_3, carbon monoxide (CO), particulate matter 10 microns or smaller in diameter (PM_{10}), particulate matter 2.5 microns or smaller in diameter ($PM_{2.5}$), and nitrogen dioxide (NO_2). Information regarding concentrations of pollutants over the last 3 years (2017–2019) is summarized in Table 3.1-1.

The monitoring data show the following trends for pollutant concentrations:

- The 1-hour O_3 state standard as well as the 8-hour O_3 state and federal standards were exceeded in each of the most recent years (2017–2019) for which data are available.
- The 24-hour PM_{10} state standard was exceeded during the most recent 3-year period.
- The 24-hour $PM_{2.5}$ federal standard was exceeded during the most recent 3-year period.
- There were no exceedances of the 1-hour NO_2, 1-hour CO, 8-hour CO, or PM_{10} federal standards during the most recent 3-year period.

As discussed in Section 3.1.3, *Regulatory Setting*, the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) define clean air and represent the maximum amount of pollution that can be present in outdoor air without any harmful effects on

people and the environment. Existing violations of the O_3 and particulate matter (PM) ambient air quality standards indicate that certain individuals exposed to this pollutant may experience certain health effects, including increased incidence of cardiovascular and respiratory ailments.

Table 3.1-1. Ambient Background Concentrations from the Riverside-Rubidoux Station

Pollutant Standards	2017	2018	2019
1-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.145	0.123	0.123
Number of Days Standard Exceeded			
CAAQS 1-hour Standard (>0.09 ppm)	47	22	24
8-Hour Ozone (O_3)			
State Maximum Concentration (ppm)	0.119	0.101	0.096
National Maximum Concentration (ppm)	0.118	0.101	0.096
National Fourth-Highest Concentration (ppm)	0.102	0.096	0.092
National Design Value (ppm)	0.098	0.098	0.096
Number of Days Standard Exceeded			
CAAQS 8-hour Standard (>0.070 ppm)	82	57	63
NAAQS 8-hour Standard (>0.070 ppm)	81	53	59
Carbon Monoxide (CO)			
Maximum Concentration 8-hour Period (ppm)	1.8	2.0	1.2
Maximum Concentration 1-hour Period (ppm)	2.4	2.2	1.5
Number of Days Standard Exceeded			
NAAQS 8-hour Standard (≥9 ppm)	0	0	0
CAAQS 8-hour Standard (≥9.0 ppm)	0	0	0
NAAQS 1-hour Standard (≥35 ppm)	0	0	0
NAAQS 1-hour Standard (≥20 ppm)	0	0	0
Nitrogen Dioxide (NO_2)			
Maximum National 1-hour Concentration (ppm)	0.063	0.055	0.056
Maximum State 1-hour Concentration (ppm)	0.063	0.055	0.056
Annual Average Concentration (ppm)	0.014	0.014	0.014
Number of Days Standard Exceeded			
CAAQS 1-Hour Standard (0.18 ppm)	0	0	0
NAAQS 1-Hour Standard (100 ppb)	0	0	0
Suspended Particulates (PM_{10})			
Maximum State 24-hour Concentration (µg/m^3)	137.6	126.0	182.4
Maximum National 24-hour Concentration (µg/m^3)	92.0	86.5	132.5
State Annual Average Concentration (µg/m^3)	41.3	43.9	40.9
Number of Days Standard Exceeded			
CAAQS 24-hour Standard (>50 µg/m^3)	98	127	110
NAAQS 24-hour Standard (>150 µg/m^3) *(estimated days)*	0.0	0.0	0.0

Pollutant Standards	2017	2018	2019
Suspended Particulates ($PM_{2.5}$)			
Maximum National 24-hour Concentration (µg/m³)	50.3	66.3	55.7
24-hour Standard 98th Percentile (µg/m³)	30.7	28.2	32.7
National Annual Average Concentration (µg/m³)	12.2	12.5	11.2
State Annual Average Concentration (µg/m³)	14.5	12.6	11.2
Number of Days Standard Exceeded			
NAAQS 24-hour Standard (>35 µg/m³)	7	3	5

Sources: CARB 2021a; EPA 2021.
ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; N/A = data not available

Local Health Risk

SCAQMD conducts ambient air monitoring, and its evaluation studies in the Basin are compiled in the regularly updated Multiple Air Toxics Exposure Study (MATES), the most recent of which is the MATES IV study; the final draft was released to the public in May 2015. The MATES IV study estimated that the average carcinogenic risk throughout the Basin attributed to toxic air contaminants (TACs) is approximately 367 in 1 million. Approximately 80 percent of all risk is attributed to diesel particulate matter (DPM) emissions, but the MATES IV study showed a 70-percent reduction in DPM compared to MATES III. According to MATES IV, the City is within Riverside County, which has an average cancer risk of 223 in 1 million (SCAQMD 2015a). MATES V is currently being conducted and will include a fixed site monitoring program with 10 stations, an updated emissions inventory of TACs, and a modeling effort to characterize cancer risk across the Basin. The draft MATES V study was released on June 7, 2021, and will be presented to the board on August 6, 2021.

Sensitive Receptors and Locations

SCAQMD defines sensitive receptor locations as residential, commercial, and industrial land use areas, as well as other places where sensitive populations may be located, such as schools, hospitals, convalescent homes, daycare centers, and other places where children, chronically ill individuals, or other sensitive persons could be exposed (SCAQMD 2005). Sensitive receptors exist throughout the City.

Description of Relevant Air Pollutants

Criteria Pollutants

Air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. These regulated air pollutants, which are known as *criteria air pollutants*, are categorized as primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. CO, volatile organic compounds (VOCs), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and most PM (PM_{10} and $PM_{2.5}$), lead (Pb), and fugitive dust are primary air pollutants. Of these, CO, SO_2, PM_{10}, and $PM_{2.5}$ are criteria air pollutants. VOCs and NO_X are criteria pollutant precursors that form secondary pollutants through chemical and photochemical reactions in the atmosphere. NO_X reacts with other chemicals to form PM and O_3. O_3 and NO_2 are the principal secondary pollutants and are criteria air pollutants. The following descriptions of each criteria air pollutant and its health effects are based on information provided by SCAQMD (2017).

Ozone (O_3)

O_3 is a photochemical oxidant that is formed when VOC and NO_X (both byproducts of the internal combustion engine) react with sunlight.

- **VOCs**. VOCs are compounds made up primarily of hydrogen and carbon atoms (hydrocarbons). Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of VOC are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols.
- **NO_X**. The two major forms of NO_X are nitric oxide (NO) and NO_2. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown, irritating gas formed by the combination of NO and oxygen. In addition to serving as an integral participant in O_3 formation, NO_X also directly acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Ground-level O_3, the main pollutant in smog, poses a higher risk to those who already suffer from respiratory diseases (e.g., asthma), children, older adults, and people who are active outdoors. Exposure to O_3 at certain concentrations can make breathing more difficult, cause shortness of breath and coughing, inflame and damage the airways, aggregate lung diseases, increase the frequency of asthma attacks, and cause chronic obstructive pulmonary disease. Studies show associations between short-term O_3 exposure and non-accidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to O_3 may increase the risk of respiratory-related deaths (EPA 2019). The concentration of O_3 at which health effects are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms in the least responsive individual after a 2-hour exposure to 400 parts per billion of O_3 and a 50-percent reduction in forced airway volume in the most responsive individual. Although the results vary, evidence suggests that sensitive populations (e.g., people who suffer from asthma) may be affected on days when the 8-hour maximum O_3 concentration reaches 80 parts per billion (EPA 2016).

In addition to its deleterious human health effects, O_3 has been tied to crop damage, typically in the form of stunted growth, leaf discoloration, cell damage, and premature death. O_3 can also act as a corrosive and oxidant, resulting in property damage, such as the degradation of rubber products and other materials.

Carbon Monoxide (CO)

CO, a colorless, odorless, relatively inert gas, is a trace constituent in the unpolluted troposphere produced by natural processes and human activities. In remote areas far from human habitation, CO occurs in the atmosphere at an average background concentration of 0.04 part per million (ppm), primarily as a result of natural processes, such as forest fires and the oxidation of methane. Global atmospheric mixing of CO from urban and industrial sources creates higher background concentrations (up to 0.20 ppm) near urban areas. The major source of CO in urban areas is incomplete combustion of carbon-containing fuels, mainly gasoline.

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise and electrocardiograph changes indicative of worsening oxygen supply to the heart. Inhaled CO has no

direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport by competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin. Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include those with diseases involving heart and blood vessels, fetuses, and people with chronic hypoxemia (oxygen deficiency) as seen in high altitudes. Exposure to CO at high concentrations can also cause fatigue, headaches, confusion, dizziness, and chest pain. Ambient CO has no ecological or environmental effects (CARB 2020).

Sulfur Dioxide (SO_2)

SO_2 is a colorless gas with a sharp odor. It reacts in air to form sulfuric acid, which contributes to acid rain, and sulfates, which are components of PM. Main sources of SO_2 include coal and oil used in power plants and industries. Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics, the vast majority of whom are sensitive to the effects of SO_2. In asthmatics, increase in resistance to airflow, as well as reduction in breathing capacity leading to severe breathing difficulties, is observed after acute higher exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses, even after exposure to higher concentrations of SO_2.

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of particulates are now generally considered: inhalable coarse particles 10 microns or less in diameter, or PM_{10}; and inhalable fine particles 2.5 microns or less in diameter, or $PM_{2.5}$. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind on arid landscapes also contributes substantially to local particulate loading.

Particulate pollution can be transported over long distances and may adversely affect humans, especially people who are naturally sensitive or susceptible to breathing problems. Numerous studies have linked PM exposure to premature death in people with preexisting heart or lung disease. Other symptoms of exposure may include nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms (SCAQMD 2017). Depending on its composition, both PM_{10} and $PM_{2.5}$ can also affect water quality and acidity, deplete soil nutrients, damage sensitive forests and crops, affect ecosystem diversity, and contribute to acid rain (EPA 2018).

Lead (Pb)

Pb in the atmosphere is present as a mixture of a number of lead compounds. Leaded gasoline and lead smelters have been the main sources of Pb emitted into the air, but due to the phasing out of leaded gasoline, there has been a dramatic reduction in atmospheric Pb over the past three decades. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. In adults, increased Pb levels are associated with increased blood pressure. Pb poisoning can also cause anemia, lethargy, seizures, and death. There is no evidence to suggest that Pb has direct effects on the respiratory system.

Toxic Air Contaminants

TACs are generally defined as those contaminants that are known or suspected to cause serious health problems, but do not have a corresponding ambient air quality standard. TACs do not result in an immediate health hazard, but instead may increase a person's risk of developing cancer and/or other serious health effects in the long term. TACs are emitted by a variety of industrial processes, including petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. TACs may exist as PM_{10} and $PM_{2.5}$ or as vapors (gases). To date, the California Air Resources Board (CARB) has identified 21 TACs and adopted the U.S. Environmental Protection Agency's (EPA's) list of hazardous air pollutants as TACs. In August 1998, CARB identified DPM emissions as a TAC (CARB 1998). In September 2000, CARB approved a comprehensive diesel risk-reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan was to reduce DPM emissions and the associated health risk by 75 percent by 2010 and by 85 percent by 2020 (CARB 2000).

TACs include metals, other particles, gases absorbed by particles, and certain vapors from fuels and other sources. According to the 2013 *California Almanac of Emissions and Air Quality,* the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being DPM, which differs from other TACs in that it is a complex mixture of hundreds of substances rather than a single substance (CARB 2013). DPM is composed of two phases, gas and particle, and both phases contribute to health risks. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, and polycyclic aromatic hydrocarbons. The particle phase is also composed of many different types of particles by size or composition. Fine (PM less than 2.5 micrograms per cubic meter [PM2.5]) and ultra-fine (PM less than 0.1 microgram per cubic meter) PM is of the greatest health concern and may be composed of elemental carbon with adsorbed compounds, such as organic compounds, SO_2, nitrates, metals, and other trace elements. DPM is emitted from a broad range of diesel engines: the on-road diesel engines of trucks, buses, and cars and the off-road diesel engines that include locomotives, marine vessels, and heavy-duty equipment. Although DPM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and presence of an emission control system.

Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat, and lungs and has some neurological effects, such as lightheadedness. Acute exposure may also elicit a cough or nausea, as well as exacerbate asthma. Chronic exposure to DPM in experimental animal inhalation studies has shown a range of dose-dependent lung inflammation and cellular changes in the lung and immunological effects. Based upon human and laboratory studies, there is considerable evidence that DPM is a likely carcinogen. Human epidemiological studies have demonstrated an association between DPM exposure and increased lung cancer rates in occupational settings.

3.1.3 Regulatory Setting

This section identifies laws, regulations, and ordinances that are relevant to the impact analysis of air quality for the Project.

Federal

Clean Air Act and National Ambient Air Quality Standards

The Clean Air Act (CAA) was first enacted in 1963 and has been amended numerous times in subsequent years (1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as NAAQS, for six criteria air pollutants and specifies future dates for achieving compliance. The CAA also mandates that the states submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The SIPs must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. Table 3.1-2 shows the NAAQS currently in effect for each criteria pollutant, as well as the CAAQS (discussed further below).

Table 3.1-2. Federal and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards[1]	
			Primary	Secondary
Ozone	1-hour	0.09 ppm	None[2]	None[2]
	8–hour	0.070 ppm	0.070 ppm	0.070 ppm
Particulate Matter (PM_{10})	24-hour	50 μg/m^3	150 μg/m^3	150 μg/m^3
	Annual mean	20 μg/m^3	None	None
Fine Particulate Matter ($PM_{2.5}$)	24-hour	None	35 μg/m^3	35 μg/m^3
	Annual mean	12 μg/m^3	12.0 μg/m^3	15 μg/m^3
Carbon Monoxide	8-hour	9.0 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	None
Nitrogen Dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	None
Sulfur Dioxide[3]	Annual mean	None	0.030 ppm	None
	24-hour	0.04 ppm	0.014 ppm	None
	3-hour	None	None	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day Average	1.5 μg/m^3	None	None
	Calendar quarter	None	1.5 μg/m^3	1.5 μg/m^3
	3-month average	None	0.15 μg/m^3	0.15 μg/m^3
Sulfates	24-hour	25 μg/m^3	None	None
Visibility-reducing Particles	8-hour	See footnote 4	None	None
Hydrogen Sulfide	1-hour	0.03 ppm	None	None
Vinyl Chloride	24-hour	0.01 ppm	None	None

Source: CARB 2016.

[1] National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

[2] The federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for SIPs.

[3] The annual and 24-hour NAAQS for SO_2 only apply for 1 year after designation of the new 1-hour standard to those areas that were previously in nonattainment for 24-hour and annual NAAQS.
[4] CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more due to particles when relative humidity is less than 70%.
$\mu g/m^3$ = micrograms per cubic meter

Non-road Diesel Rule

EPA has established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and locomotives. New equipment used within the City, including heavy-duty trucks and off-road construction equipment, are required to comply with these emission standards.

Corporate Average Fuel Economy Standards

The Corporate Average Fuel Economy Standards were first enacted in 1975 to improve the average fuel economy of cars and light duty trucks.

On August 2, 2018, the National Highway Traffic Safety Administrative (NHTSA) and EPA proposed to amend the fuel efficiency standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026 by maintaining the current model year 2020 standards through 2026 (Safer Affordable Fuel-Efficient [SAFE] Vehicles Rule). On September 19, 2019, EPA and NHTSA issued a final action on the One National Program Rule, which is consider Part One of the SAFE Vehicles Rule and a precursor to the proposed fuel efficiency standards. The One National Program Rule enables EPA/NHTSA to provide nationwide uniform fuel economy and GHG vehicle standards, specifically by (1) clarifying that federal law preempts state and local tailpipe GHG standards, (2) affirming NHTSA's statutory authority to set nationally applicable fuel economy standards, and (3) withdrawing California's CAA preemption waiver to set state-specific standards.

EPA and NHTSA published their decisions to withdraw California's waiver and finalize regulatory text related to the preemption on September 27, 2019 (84 *Federal Register* 51310). California, 22 other states, the District of Columbia, and two cities filed suit against Part One of the SAFE Vehicles Rule on September 20, 2019 (*California et al. v. United States Department of Transportation et al*., 1:19-cv-02826, U.S. District Court for the District of Columbia). On October 28, 2019, the Union of Concerned Scientists, Environmental Defense Fund, and other groups filed a protective petition for review after the federal government sought to transfer the suit to the D.C. Circuit (*Union of Concerned Scientists v. National Highway Traffic Safety Administration*). The lawsuit filed by California and others is stayed pending resolution of the petition.

EPA and NHTSA published final rules to amend and establish national CO_2 and fuel economy standards on April 30, 2020 (Part Two of the SAFE Vehicles Rule) (85 *Federal Register* 24174). The revised rule changes the national fuel economy standards for light-duty vehicles from 50.4 to 40.5 miles per gallon in future years. This new rule rolls back California fuel efficiency standards for on-road passenger vehicles. California, 22 other states, and the District of Columbia filed a petition for review of the final rule on May 27, 2020, to challenge this new rule in the court system; it is reasonably foreseeable that the state will be successful in its legal challenges, for the reasons outlined in the state's lawsuit and on the CARB website. Furthermore, on January 20, 2021, President Biden signed an executive order directing the government to revise fuel economy standards with the goal of further reducing emissions. In February 2021, the Biden Administration's Department of Justice also asked courts to put the litigation on hold while the administration

"reconsidered the policy decisions of a prior administration." Most recently, on April 22, 2021, the Biden Administration proposed to formally roll back portions of the SAFE Rule, thereby restoring California's right to enforce more stringent fuel efficiency standards.

State

California Clean Air Act and California Ambient Air Quality Standards

In 1988, the State Legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS are shown in Table 3.1-2. Table 3.1-3 provides the Riverside County portion of the Basin's attainment status with respect to the NAAQS and CAAQS.

Table 3.1-3. Federal and State Attainment Status for Riverside County

Criteria Pollutant	Federal Designation	State Designation
Ozone (O_3) (8-hour)	Nonattainment (Extreme)	Nonattainment
Carbon Monoxide (CO)	Attainment	Attainment
Respirable Particulate Matter (PM_{10})	Attainment/Serious Maintenance	Nonattainment
Fine Particulate Matter ($PM_{2.5}$)	Nonattainment (Serious)	Nonattainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead (Pb)	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen Sulfide	(No federal standard)	Unclassified
Visibility	(No federal standard)	Unclassified

Sources: CARB 2021b; SCAQMD 2021.

Note: At the time of designation, if the available data do not support a designation of attainment or nonattainment, the area is designated as unclassified.

CARB and local air districts bear responsibility for meeting the CAAQS, which are to be achieved through district-level air quality management plans (AQMPs) incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to CARB, which, in turn, has delegated that authority to individual air districts. CARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

State Tailpipe Emission Standards

Like EPA at the federal level, CARB has established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and harbor craft operating in California. New equipment used during construction of development facilitated by the Project would be required to comply with the standards.

Carl Moyer Memorial Air Quality Standards Attainment Program

The Carl Moyer Memorial Air Quality Standards Attainment Program is a voluntary program that offers grants to owners of heavy-duty vehicles and equipment. The program is a partnership between CARB and the local air districts throughout the state to reduce air pollution emissions from heavy-duty engines. Locally, the air districts administer the program. The program is available for on-road projects that include public agency and utility vehicles, among other vehicle types.

Toxic Air Contaminant Regulations

California regulates TACs primarily through the Toxic Air Contaminant Identification and Control Act (Tanner Act) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 ("Hot Spots" Act). In the early 1980s, CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Act created California's program to reduce exposure to air toxics. The "Hot Spots" Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

CARB has identified DPM as a TAC and has approved a comprehensive diesel risk-reduction plan (CARB 2000) to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce DPM emissions and the associated health risk by 75 percent by 2010 and by 85 percent by 2020. The plan identifies 14 measures that CARB will implement to reduce DPM. The Project would be required to comply with any applicable diesel control measures from the diesel risk-reduction plan.

Senate Bill 535 and Assembly Bill 1550

Senate Bill (SB) 535 requires the California Environmental Protection Agency to identify environmental justice communities based on geographic, socioeconomic, public health, and environmental hazard criteria. It also requires that the investment plan developed and submitted to the Legislature pursuant to Assembly Bill (AB) 1550 allocate no less than 25 percent of available proceeds from the carbon auctions held under AB 32 to projects that will benefit these environmental justice communities. At least 10 percent of the available funds from these auctions must be directly invested in such communities. Because CalEnviroScreen has been developed to identify areas disproportionately affected by pollution and those areas whose populations are socioeconomically disadvantaged, it is well suited for the purposes described by SB 535 (Cal/EPA 2017).

Figure 3.9-1 in Section 3.9, *Population and Housing*, summarizes SB 535 environmental justice communities within the City and its Sphere of Influence. As shown, those communities with the highest pollution burden percentile are generally in the northern and central portions of the City along State Route 91 and Interstate 215.

Regional

South Coast Air Quality Management District

The City lies within the Riverside County portion of the Basin, which is under the jurisdiction of SCAQMD. SCAQMD has jurisdiction over an area of approximately 10,743 square miles, including all of Orange County, Los Angeles County (except for the Antelope Valley), the non-desert portion of western San Bernardino County, and the western and Coachella Valley portions of Riverside County. The Basin is a sub-region of SCAQMD's jurisdiction. Although air quality in this area has improved, the Basin requires continued diligence to meet air quality standards.

SCAQMD has adopted a series of AQMPs to meet the CAAQS and NAAQS. These plans require, among other emissions-reducing activities, control technology for existing sources, control programs for area sources and indirect sources, an SCAQMD permitting system that allows no net increase in emissions from any new or modified (i.e., previously permitted) emissions sources, and transportation control measures. The most recent publication is the 2016 AQMP, which is intended to serve as a regional blueprint for achieving the federal air quality standards for healthful air.

The 2016 AQMP represents a thorough analysis of existing and potential regulatory control options and includes available, proven, and cost-effective strategies to pursue multiple goals in promoting reductions in GHG emissions and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The 2016 AQMP focuses on demonstrating NAAQS attainment dates for the 2008 8-hour O_3 standard, the 2012 annual $PM_{2.5}$ standard, and the 2006 24-hour $PM_{2.5}$ standard. The 2016 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the NAAQS are not met by the established date (SCAQMD 2017).

SCAQMD published the *CEQA Air Quality Handbook* in November 1993 to help local governments analyze and mitigate project-specific air quality impacts. This handbook provides standards, methodologies, and procedures for conducting air quality analyses as part of CEQA documents prepared within SCAQMD's jurisdiction (SCAQMD 1993). In addition, SCAQMD has several supplemental documents, including *Air Quality Significance Thresholds* (2019), *Localized Significance Threshold Methodology* (2003, revised 2008), and *Final Methodology to Calculate Particulate Matter (PM) 2.5 and $PM_{2.5}$ Significance Thresholds* (2006). These documents provide guidance for evaluating localized effects from mass emissions, and were used in the preparation of this analysis (SCAQMD 2006, 2008, 2019).

The Project is also required to comply with all applicable SCAQMD rules and regulations pertaining to construction activities including, but not limited to, the following:

- **SCAQMD Rule 402—Nuisance:** This rule prohibits the discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, endanger the comfort, repose, health, or safety of any such persons or the public, or cause, or have a natural tendency to cause, injury or damage to business or property. Odors are regulated under this rule.
- **SCAQMD Rule 403—Fugitive Dust:** This rule prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remains visible beyond the property line of the emission's source. During construction, best available control measures

identified in the rule would be required to minimize fugitive dust emissions from proposed earthmoving and grading activities. These measures would include site pre-watering and re-watering as necessary to maintain sufficient soil moisture content. Additional requirements apply to construction projects on properties with 50 or more acres of disturbed surface area or any earthmoving operation with a daily earthmoving or throughput volume of 5,000 cubic yards or more three times during the most recent 365-day period. These requirements include submittal of a dust control plan, maintenance of dust control records, and designation of an SCAQMD-certified dust control supervisor.

- **SCAQMD Rule 445—Wood-Burning Devices:** This rule prohibits the installation of wood-burning devices in new development.
- **SCAQMD Rule 1108—Cutback Asphalt:** This rule specifies VOC content limits for cutback asphalt.
- **SCAQMD Rule 1113—Architectural Coatings:** This rule specifies VOC content limits for architectural coatings.
- **SCAQMD Rule 1403—Asbestos Emissions from Demolition/Renovation Activities:** This rule specifies work practices to limit asbestos emissions from building demolition and renovation activities including the removal and disturbance of asbestos-containing material (ACM). This rule is generally designed to protect uses surrounding demolition or renovation activity from exposure to asbestos emissions.

Southern California Association of Governments

The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties. SCAG addresses regional issues related to transportation, the economy, community development, and the environment and is the federally designated metropolitan planning organization for a majority of the region and the largest metropolitan planning organization in the nation. As required by federal and state law, SCAG develops plans pertaining to transportation, growth management, hazardous waste management, housing, and air quality. SCAG data are used in the preparation of air quality forecasts and the conformity analysis included in the AQMP.

On May 7, 2020, SCAG's Regional Council adopted the 2020–2045 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS) (SCAG 2020) (also known as *Connect SoCal*) for federal transportation conformity purposes only. The Regional Council approved the 2020–2045 RTP/SCS on September 3, 2020. The RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The RTP/SCS charts a course for closely integrating land use and transportation so the region can grow smartly and sustainably.

The 2020–2045 RTP/SCS includes a strong commitment to reduce emissions from transportation sources to comply with SB 375, improve public health, and meet the NAAQS as set forth by the CAA. While 2020 is the most current RTP/SCS for the SCAG region, the most recent AQMP (2016) was developed using the 2016 SCAG RTP/SCS.

Local

Riverside General Plan 2025

Riverside General Plan 2025 (GP 2025) was adopted in November 2007 and considers the continued growth of the City through 2025. GP 2025's Air Quality Element summarizes air quality issues and outlines policies that will improve air quality in the City. The Air Quality Element is also a planning tool for protecting the public's health and welfare. The element identifies the City's role in helping the Basin meet federal and state air quality standards and identifies provisions and programs to protect the City's residents and businesses from air quality impacts.

The policies of the Air Quality Element focus on meeting air quality standards and reducing vehicle miles traveled (VMT).

Table 3.1-4 presents an overview of GP 2025 and other Specific Plans policies related to air quality.

Table 3.1-4. Relevant Riverside General Plan and Specific Plan Policies

Plan	Policy
Riverside General Plan 2025	
Air Quality Element	Policy AQ-1.3: Separate, buffer and protect sensitive receptors from significant sources of pollution to the greatest extent possible.
	Policy AQ-1.5: Encourage infill development projects within urbanized areas, which include job centers and transportation nodes.
	Policy AQ-1.6: Provide a mechanism to create opportunities for mixed- use development that allows the integration of retail, office, institutional and residential uses for the purpose of reducing costs of infrastructure construction and maximizing the use of land.
	Policy AQ-1.7: Support appropriate planned residential developments and infill housing, which reduce vehicle trips.
	Policy AQ-1.15: Establish land use patterns that reduce the number and length of motor vehicle trips and promote alternative modes of travel.
	Policy AQ-1.17: Avoid locating multiple-family developments close to commercial areas that emit harmful air contaminants.
	Policy AQ-1.18: New residential subdivisions shall be designed to encourage "walkable" neighborhoods with pedestrian walkways and bicycle paths to facilitate pedestrian travel.
	Policy AQ-1.23: Increase residential and commercial densities around rail and bus transit stations.
	Policy AQ-2.4: Monitor and strive to achieve performance goals and/or VMT reduction which are consistent with SCAG's goals.
	Policy AQ-2.7: Use incentives, regulations and Transportation Demand Management in cooperation with surrounding jurisdictions to eliminate vehicle trips that would otherwise be made.
	Policy AQ-3.6: Support "green" building codes that require air conditioning/filtration installation, upgrades or improvements for all buildings, but particularly for those associated with sensitive receptors.
	Policy AQ-4.2: Reduce particulate matter from agriculture (e.g., require use of clean non-diesel equipment and particulate traps), construction, demolition,

Plan	Policy
	debris hauling, street cleaning, utility maintenance, railroad rights-of-way and off-road vehicles to the extent possible, as provided in SCAQMD Rule 403.
	Policy AQ-4.5: Require the suspension of all grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour.
	Policy AQ-5.1: Utilize source reduction, recycling and other appropriate measures to reduce the amount of solid waste disposed of in landfills.
	Policy AQ-5.3: Continue and expand use of renewable energy resources such as wind, solar, water, landfill gas, and geothermal sources.
	Policy AQ-5.6: Support the use of automated equipment for conditioned facilities to control heating and air conditioning.
	Policy AQ-5.7: Require residential building construction to meet or exceed energy use guidelines in Title 24 of the California Administrative Code.
	Policy AQ-8.23: Apply urban planning principles that encourage higher density, mixed use, walkable/bikeable neighborhoods, and coordinate land use and transportation with open space systems in 2008.
Specific Plans	
Canyon Springs Business Park Specific Plan	There are no applicable policies relevant to the Project regarding air quality.
Downtown Specific Plan	There are no applicable policies relevant to the Project regarding air quality.
Hunter Business Park Specific Plan	There are no applicable policies relevant to the Project regarding air quality.
La Sierra University Specific Plan	**Policy LSU-2.3**. As the Specific Plan and its Environmental Impact Report addresses in a comprehensive fashion issues such as land use, traffic, noise, hydrology, earth, air quality, biological resources, public services, cultural resources, aesthetics, infrastructure and grading, a Conditional Use Permit shall not be required for development of uses on the La Sierra University campus which are described in this Specific Plan. Plot plan review by the Planning Commission will be required for significant alteration, expansion and new construction in Subareas 1 and 2. Environmental Impact Report Mitigation Monitoring Program Require that contractors: • Use low emission on-site mobile construction equipment. • Maintain equipment in tune, per manufacturer's specifications. • Use catalytic converters on gasoline powered equipment. • Retard diesel engine injection timing by four degrees. • Use reformulated, low emission diesel fuel. • Substitute electric and gasoline powered equipment for diesel powered equipment where feasible. • Where applicable, do not leave equipment idling for prolonged periods. • Curtail (cease or reduce) construction during periods of high ambient pollutant concentrations (i.e., Stage 2 smog alerts). • Configure construction parking to minimize traffic interference. • Provide temporary traffic control during all phases of construction activities to improve traffic flow (e.g., flag person). Fugitive Dust. The contractor shall:

Plan	Policy
	• Spread soil binders on site, on unpaved roads, and in parking areas. • Water the site and the equipment in the morning and evening. • Reestablish ground cover on the construction site through seeding and watering. • Pave on-site haul roads. • Phase grading to prevent the susceptibility of large areas to erosion over extended periods of time. • Schedule activities to minimize the amount of exposed excavated soil during and after the end of work periods. • Sweep streets on a daily basis, if silt is carried over to adjacent public thoroughfares or occurs as a result of hauling. • Suspend grading operations during high winds in accordance with Rule 403 requirements. • Wash trucks leaving site. • Maintain a minimum 24 inch freeboard ratio on haul trucks. • Cover payloads on haul trucks using tamps or other suitable means. • Traffic speeds on all unpaved roads to be reduced to 15 mph or less. • Where applicable, specify the use of concrete, asphaltic cement, or emulsified asphalt. Avoid cut-back asphalt wherever feasible. • Consider the use of high volume low pressure or manual application of paints and coatings on structures. Where applicable, use pre-finished or pre-primed, sanded wood molding and trim products, and pre-primed wallboard. • Where applicable, specify the use of low VOC paints and coating now offered by many of the major brands (e.g., Frazee) • Where applicable, specify the use of nonpolluting, powder coating operations and powder coated metal products. • When possible, specify the use of natural finishes, such as brick, clay tile, and uncoated concrete.
Magnolia Avenue Specific Plan	There are no applicable policies relevant to the Project regarding air quality.
Riverside Marketplace Specific Plan	There are no applicable policies relevant to the Project regarding air quality.
University Avenue Specific Plan	There are no applicable policies relevant to the Project regarding air quality.

Sources: City of Riverside 1991, 2002, 2005, 2007a, 2007b, 2009, 2017a, 2017b.

Policy Consistency

The Project would be generally consistent with GP 2025 and Specific Plan goals and policies as described in Table 3.1-4. As discussed in Chapter 2, *Project Description*, one of the objectives of the Project is to ensure affordable housing is added across the City and not concentrated in areas with lower access to amenities or near sources of pollution. The Housing Element Update includes a guiding principle that seeks to equitably distribute a mix of housing types, including ownership and rental, that is safe and affordable for people of all income levels, backgrounds, and ages and that meets the needs of current and future Riverside residents.

The principles, policies, actions, and programs within the Housing Element Update relate directly to and must be consistent with other elements of GP 2025. As the Project comprises Phase 1 of a comprehensive update of GP 2025, the principles, policies, actions, and programs of the Housing Element and Public Safety Element will serve as a platform for developing updates of the remaining GP 2025 elements in the forthcoming Phase 2 update. The Project may result in development that may be inconsistent with City policies relating to air quality in the Air Quality Element (City of Riverside 2007a), as described in Table 3.1-4. Implementation of Mitigation Measures **MM-AQ-1** through **MM-AQ-4** would help to address policy inconsistencies. These measures require future development projects enabled by the Project to implement emissions-reducing measures during construction and operation, and to evaluate for health risk to reduce impacts from the Project, where necessary.

3.1.4 Methodology and Thresholds of Significance

Methods for Analysis

Air quality impacts associated with construction and operation of the various Project components were assessed and quantified where possible using industry standard and accepted software tools, techniques, and emission factors. A summary of the methodology is provided below. The methodology used to estimate air quality emissions discussed below is the same that was used to estimate GHG emissions, as described in Section 3.5, *Greenhouse Gas Emissions*.

Construction

Implementation of the Project would generate emissions of VOC, NO_X, CO, sulfur oxides (SO_X), PM_{10}, and $PM_{2.5}$ during construction activities. Implementation of the Project could result in up to 31,564 dwelling units and approximately 3,181,930 square feet of nonresidential uses within Opportunity Sites, which is 31,175 dwelling units and approximately 1,433,460 square feet above existing uses, as shown in Table 3.1-5. These new land uses would be developed over an assumed 8-year period, which could result in short-term impacts on ambient air quality within the City. Sources of construction emissions would include mobile and stationary construction equipment exhaust, employee and haul truck vehicle exhaust, land clearing and material movement, paving, and application of architectural coatings. However, the specific size, location, and construction techniques and scheduling that would be used for each individual development project occurring in the City from implementation of the Project is not currently known. With a horizon year of 2029, development of the various land uses associated with the Project would occur over an extended period and would depend on factors such as local economic conditions, market demand, and other financing considerations. As such, without specific project-level details, it is not possible to develop a refined construction inventory.[1] Consequently, the determination of construction air quality impacts for each individual development project, or a combination of these projects, would require the City to speculate regarding such potential future project-level environmental impacts. Therefore, in the absence of the necessary construction information required to provide an informative and meaningful analysis, the evaluation of potential construction-related impacts resulting from implementation of the Project is conducted qualitatively. The analysis discusses the potential for

[1] Project-level information includes details such as the size and scale of the project to be constructed, construction schedule, equipment fleet, construction worker crew estimates, and demolition and grading quantities.

future individual developments in the City to generate construction emissions that, where necessary, would apply mitigation measures to reduce those emissions.

Operation

Build-out of the Project would result in a change in emissions relative to the development proposed in GP 2025. Operation of the potential dwelling units and nonresidential uses summarized in Table 3.1-5 would generate criteria pollutants and precursor emissions that could result in long-term impacts on ambient air quality within the City. Emissions would result from motor vehicle travel; area sources, such as landscaping, consumer products, architectural coatings; and natural gas consumption associated with space and water heating. Due to the adoption of SCAQMD Rule 445, *Wood-Burning Devices*, in 2008, it was assumed that new development would be constructed without the installation of permanent wood-burning fireplaces, stoves, or other devices.

Given that the Project requires rezoning of land throughout the City to fulfill the proposed development goals, the operational emissions analysis accounts for the net change in emissions from GP 2025. The land use changes and proposed land use assumptions are outlined in Table 3.1-5. Area and energy (natural gas) emissions for these land uses were estimated using CalEEMod, version 2016.3.2.

Table 3.1-5. Land Use Changes with Implementation of the Project

Land Use Type	Amount
Land Uses Removed from GP 2025	
Housing	-389 dwelling units
Non-Residential	-1,748,470 square feet
Land Uses Proposed for GP 2025	
Housing	31,564 dwelling units
Non-Residential	3,181,930 square feet
Net Land Use Development	
Housing	31,175 dwelling units
Non-Residential	1,433,460 square feet

Source: Data provided by Fehr & Peers 2021.

Air quality impacts from motor vehicles associated with the Project were evaluated using the EMFAC2021 emissions model. The mobile source emission factors (grams per mile and grams per trip) were averaged in EMFAC2021 based on vehicle and fuel types at aggregated speeds for the vehicle fleet operating within the Basin at the full build year of 2029. The emission factors were applied to the Project-specific VMT estimates outlined in Table 3.1-6 to generate mobile-source emission estimates. Refer to Appendix C for additional information on the assumptions and model data used to estimate the Project's potential future operational emissions.

Table 3.1-6. VMT Changes with Implementation of the Project

General Plan Build-Out Scenario	VMT
Existing Conditions	12,311,159
Future Project Conditions	13,985,353
Net VMT	*1,674,194*

Source: Data provided by Fehr & Peers 2021.

Thresholds of Significance

An Initial Study was prepared for the Project in April 2021. The following environmental threshold was scoped out from detailed review in this section of the Draft EIR because the impact was determined to be less than significant in the Initial Study:

- Would the project result in other emissions (such as those leading to odors) affecting a substantial number of people?

For a complete discussion of the environmental issues that were scoped out from this Draft EIR, refer to Section 3.15, *Effects Not Found to Be Significant*.

In accordance with Appendix G of the State CEQA Guidelines, the Project would be considered to have a significant effect if it would:

- Conflict with or obstruct implementation of the applicable air quality plan
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard
- Expose sensitive receptors to substantial pollutant concentrations

Appendix G, Section III, of the State CEQA Guidelines states that, where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make determinations regarding air quality impacts. Given SCAQMD's regulatory role in the Basin, the significance thresholds and analysis methodologies established by SCAQMD are relied upon to make determinations regarding air quality impacts.

Criteria Pollutants

Regional Air Quality

In its CEQA Air Quality Handbook, SCAQMD has established significance thresholds to assess the impact of project-related air pollutant emissions. Table 3.1-7 presents these significance thresholds. There are separate thresholds for short-term construction and long-term operational emissions. A project with daily emission rates below these thresholds is considered to have a less-than-significant effect on regional air quality. It should be noted that these SCAQMD significance thresholds were developed to analyze emissions generated by a single project.

Table 3.1-7. SCAQMD Regional Mass Emissions Significance Thresholds (pounds per day)

Project Phase	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$	Pb[1]
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

Source: SCAQMD 2019.
[1] The Project would result in no Pb emissions during construction or operations due to the prohibition of Pb in fuels. As such, Pb emissions are not evaluated herein.

Local Air Quality

Localized Significance Thresholds (LSTs) were developed in response to the SCAQMD Governing Board's Environmental Justice Enhancement Initiative. SCAQMD provided *the Final Localized Significance Threshold Methodology* (revised July 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with proposed development projects. SCAQMD provides the LST lookup tables for 1-, 2-, and 5-acre projects emitting CO, NO_X, PM_{10}, and $PM_{2.5}$. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. Furthermore, LSTs are applicable to individual development projects at the project-specific level and are not applicable to regional projects such as general plans.

Health-Based Thresholds for Project-Generated Pollutants of Human Health Concern

In December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (6 Cal. 5th 502), hereafter referred to as the Friant Ranch Decision. The case reviewed the long-term regional air quality analysis contained in the EIR for the proposed Friant Ranch development project, which is a 942-acre master plan development in unincorporated Fresno County within the San Joaquin Valley Air Basin that is currently in nonattainment for the O_3 and $PM_{2.5}$ NAAQS and CAAQS. The court found that the air quality analysis was inadequate because it failed to provide enough detail "for the public to translate the bare [criteria pollutant emissions] numbers provided into adverse health impacts or to understand why such a translation is not possible at this time." The court's decision clarifies that environmental documents must connect a project's air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis.

All criteria pollutants that would be generated by the Project are associated with some form of health risk (e.g., asthma). Criteria pollutants can be classified as either regional or localized pollutants: regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source, and localized pollutants affect ambient air quality near the emissions source. O_3 is considered a regional criteria pollutant, whereas CO, NO_2, SO_2, and Pb are localized pollutants. PM can be both a local and a regional pollutant, depending on its composition. As discussed above, the primary criteria pollutants of concern generated by the Project are O_3 precursors (ROG and NO_X), CO, and PM (including DPM).

Regional Project-Generated Criteria Pollutants (O_3 Precursors and Regional PM)

Adverse health effects induced by regional criteria pollutant emissions generated by the Project (O_3 precursors and PM) would be highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). For these reasons, O_3 precursors (ROG and NO_X)

contribute to the formation of ground-borne O_3 on a regional scale, where emissions of ROG and NO_X generated in one area may not equate to a specific O_3 concentration in that same area. Similarly, some types of particulate pollutant may be transported over long distances or formed through atmospheric reactions. As such, the magnitude and locations of specific health effects from exposure to increased O_3 or regional PM concentrations are the product of emissions generated by numerous sources throughout a region, as opposed to an individual project.

Moreover, exposure to regional air pollution does not guarantee that an individual will experience an adverse health effect—as discussed above, there are large individual differences in the intensity of symptomatic responses to air pollutants. These differences are influenced, in part, by the underlying health condition of an individual, which cannot be known.

Models and tools have been developed to correlate regional criteria pollutant emissions to potential community health impacts. While there are models capable of quantifying O_3 and secondary PM formation and associated health effects, these tools were developed to support regional planning and policy analysis and have limited sensitivity to small changes in criteria pollutant concentrations induced by individual projects. Therefore, translating Project-generated criteria pollutants to the locations where specific health effects could occur or the resultant number of additional days of nonattainment cannot be estimated with a high degree of accuracy for relatively small projects or growth within specific Opportunity Sites (relative to the regional air basin).

Technical limitations of existing models to correlate project-level regional emissions to specific health consequences are recognized by air quality management districts throughout the state, including the San Joaquin Valley Air Pollution Control District (SJVAPCD) and SCAQMD, both of which provided *amici curiae* briefs for the Friant Ranch legal proceedings. In its brief, SJVAPCD acknowledges that while health risk assessments for localized TACs, such as DPM, are commonly prepared, "it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task" (SJVACPD 2015a). SJVAPCD further notes that emissions solely from the Friant Ranch project (which equate to less than 0.1 percent of the total NO_X and VOC in the San Joaquin Valley) are not likely to yield valid information, and that any such information should not be "accurate when applied at the local level." SCAQMD presents similar information in its brief, stating that "it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels"[2] (SCAQMD 2015b).

As discussed above, air districts develop region-specific CEQA thresholds of significance in consideration of existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS, both of which are informed by a wide range of scientific evidence that demonstrates there are known safe concentrations of criteria pollutants. While recognizing that air quality is a cumulative problem, air districts typically consider projects that generate criteria pollutant and O_3 precursor emissions below these thresholds to be minor in nature and to not adversely affect air quality such that the NAAQS or CAAQS would be exceeded. Emissions generated by the Project could increase photochemical reactions and the formation of tropospheric O_3 and secondary PM, which, at certain concentrations, could lead to increased incidence of specific health consequences. Although these health effects are associated with O_3 and particulate pollution, the

[2] For example, SCAQMD's analysis of its 2012 Air Quality Attainment Plan showed that modeled NO_X and ROG reductions of 432 and 187 tons per day, respectively, only reduced O_3 levels by 9 parts per billion. Analysis of SCAQMD's Rule 1315 showed that emissions of NO_X and ROG of 6,620 and 89,180 pounds per day, respectively, contributed to 20 premature deaths per year and 89,947 school absences (SCAQMD 2015b).

effects are a result of cumulative and regional emissions. As such, an individual development project's incremental contribution, including that from growth facilitated by the identified Opportunity Sites, cannot be traced to specific health outcomes on a regional scale, and a quantitative correlation of Project-generated regional criteria pollutant emissions to specific human health impacts is not included in this analysis.

Localized Project-Generated Criteria Pollutants (PM, NO_2, and CO)

Localized pollutants generated by an individual development project are deposited and potentially affect population near the emissions source. Because these pollutants dissipate with distance, emissions from individual projects can result in direct and material health impacts on adjacent sensitive receptors. Models and thresholds are readily available to quantify these potential health effects and evaluate their significance. As discussed above, SCAQMD has developed LSTs for NO_X, CO, PM_{10}, and $PM_{2.5}$ that represent the maximum emissions from an individual development project's onsite activities that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards, and thus would not cause or contribute to localized air quality impacts related to public health.

Toxic Air Contaminants

The California Supreme Court has held that lead agencies are not required to analyze the impacts of the environment on a project's future users or residents, unless the project exacerbates existing environmental hazards (see *California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.41h 369*) or when the legislature has indicated by specific California Public Resources Code sections (21096, 21151.8, 21155.1, 21159.21, 21159.22, 21159.23, and 21159.24) that specifically defined environmental hazards associated with airport noise and safety, school projects, certain kinds of infill housing, and transit priority projects must be addressed. Certain land use types proposed under the Project may introduce emission sources (e.g., generators, delivery trucks) that would exacerbate existing environmental TAC hazards.

Regarding sensitive receptors' exposure to substantial pollutant concentrations, SCAQMD states that a project would have a significant impact from TACs if:

- The project emits carcinogenic materials or TACs that exceed the maximum incremental cancer risk of 10 in 1 million or a cancer burden greater than 0.5 excess cancer cases (in areas greater than or equal to 1 in 1 million or an acute or chronic hazard index of 1.0)

Carbon Monoxide Hot Spots

Heavy traffic congestion can contribute to high levels of CO. Individuals exposed to these CO "hot spots" may have a greater likelihood of developing adverse health effects. The potential for the Project to result in localized CO impacts at intersections resulting from addition of its traffic volumes is assessed against the health-based CAAQS and NAAQS for CO. SCAQMD states that a project impact is significant if it causes or contributes to an exceedance of the following attainment standards:

- 1-hour standards of 20 ppm (state) and 35 ppm (federal)
- 8-hour standards of 9.0 ppm (state) and 9 ppm (federal)

Asbestos

There are no quantitative thresholds related to receptor exposure to asbestos. However, SCAQMD Rule 1403 (Asbestos Emissions from Demolition/Renovation Activities) specifies work practices to limit asbestos emissions from building demolition and renovation activities including the removal and disturbance of ACM. This rule is generally designed to protect uses surrounding demolition or renovation activity from exposure to asbestos emissions. Rule 1403 requires surveys of any facility being demolished or renovated for the presence of ACM. Rule 1403 also establishes notification procedures, handling operations, warning label requirements, and removal procedures, including complying with the limitations of the National Emission Standards for Hazardous Air Pollutants regulations as listed in Code of Federal Regulations, Title 40, Part 61.

3.1.5 Impacts and Mitigation Measures

Impact AQ-1: The Project would conflict with or obstruct implementation of the applicable air quality plan. This impact would be significant and unavoidable with implementation of mitigation.

Housing Element Update, Zoning Code Amendments, and Environmental Justice Policies

In general, a development is deemed consistent with the applicable air quality plan if the project proposes development that is consistent with the growth anticipated by the relevant land use plans that were used in the formulation of the air quality attainment plans. The Project is a policy-level planning effort that encourages and facilitates the development and redevelopment of a range of housing types and affordability levels while facilitating mixed-use development and public safety infrastructure. The Housing Element Update includes Environmental Justice Policies to facilitate equitable distribution of housing throughout the City. These policies promote housing in response to the needs and desires of the residents of environmental justice communities and facilitate the development of affordable and supportive housing. Due to the Environmental Justice Policies being a policy-level planning effort, these policies would not create growth directly or indirectly that is inconsistent with the relevant land use plan. Additionally, the Project does not include specific development proposals. Future development facilitated by the Project would occur as market conditions allow and at the discretion of individual property owners.

Opportunity Sites have been identified to accommodate future housing and mixed-use development; this includes potential redevelopment sites that will help the City meet housing demand and its Regional Housing Needs Assessment (RHNA) obligation. The Housing Element Update proposes to implement general plan amendments, Zoning Code changes, and Specific Plan amendments on 581 acres within City boundaries to accommodate a variety of housing types and densities to accommodate the needs of all income levels. Seven existing Specific Plans will require updates, including mapping and land use changes, to accommodate Opportunity Sites that have been identified within their boundaries. Overall, the Zoning Code and Specific Plan amendments associated with the Project could result in an increase of 31,175 new dwelling units over existing conditions (31,564 dwelling units total) and as much as 1,433,460 square feet of nonresidential uses above what is currently assumed in GP 2025. The Project's intent is not to generate the full build-out of housing within the planning cycle, but to provide the capacity (i.e., through land use designation

and zoning) for the housing market to adequately address housing needs for all income groups and direct that capacity where planned growth is best suited to occur.

The 2016 AQMP was adopted by SCAQMD as a program to lead the Basin into compliance with criteria pollutant standards and other federal requirements for which the Basin is not in compliance. The 2016 AQMP relies on emissions forecasts based on the demographic and economic growth projections provided by the SCAG 2016 RTP/SCS (SCAQMD 2017). SCAG is charged by California law to prepare and approve "the portions of each 2016 AQMP relating to demographic projections and integrated regional land use, housing, employment, and transportation programs, measures and strategies" (SCAQMD 2017). A project is considered to be consistent with the 2016 AQMP and not obstruct its implementation if, in part, it is consistent with the demographic and economic growth projections used in the formulation of the 2016 AQMP. SCAQMD recommends that, when determining whether a project is consistent with the current 2016 AQMP, a lead agency must assess (1) whether the project would directly obstruct implementation of the plan through an increase in the frequency or severity of existing air quality violations, or cause or contribute to new violations, or delay timely attainment of air quality standards; and (2) whether it is consistent with the demographic and economic assumptions (typically land use–related, such as resultant employment or residential units) upon which the plan is based (SCAQMD 1993).

Criterion No. 1

The Basin is currently designated as a nonattainment area for the federal and state O_3 and $PM_{2.5}$ standards and a nonattainment area for the state PM_{10} standard. As discussed below under Impact AQ-2, SCAQMD's project-level thresholds were developed to analyze emissions generated by a single project. While the construction emission impacts associated with each new residential and nonresidential development project would be short term in nature, the concurrent construction of a multitude of individual development projects that could occur at any one time in the City under the Project could generate combined criteria pollutant emissions on a daily basis that could exceed SCAQMD's project-level thresholds. Additionally, the long-term operational emissions from the build-out of the Project would exceed SCAQMD's daily emissions thresholds for ROG, NO_X, and CO. In order to reduce potential impacts, the Project would implement Mitigation Measures **MM-AQ-1** and **MM-AQ-2** (described under Impact-AQ-2 below) to help reduce criteria air pollution emissions from future construction-related and operational activities due to new development facilitated by the Project. As discussed under Impact AQ-3, the individual development occurring within the City may exceed the construction and operational SCAQMD LSTs. As such, the Project's emissions would increase concentrations of criteria pollutants or their precursors in a manner that could obstruct SCAQMD's efforts to achieve attainment of ambient air quality standards for any criteria pollutant for which it is currently in nonattainment, or jeopardize the current attainment status of the Basin for other criteria pollutants. Therefore, the general plan amendments, Zoning Code changes, and Specific Plan amendments under the Project would not be consistent with the 2016 AQMP under this criterion.

Criterion No. 2

As discussed previously, the 2016 AQMP relies on emissions forecasts based on the demographic and economic growth projections provided by the SCAG 2016 RTP/SCS. In turn, SCAG's population, housing, and employment forecasts are based on data from local general plans, which in this case would be the existing GP 2025. However, under the Project, general plan amendments, Zoning Code changes, and Specific Plan amendments are proposed to fulfill the City's 6th cycle RHNA

requirements. Specifically, the Project has identified 239 acres across the City where new potential housing development could occur under existing zoning and 581 acres for future development that would require general plan amendments, Zoning Code changes, and/or Specific Plan amendments. In total, 870 potential parcels totaling 820 acres have been identified for new housing and nonresidential development that would result in an increase of 31,175 new dwelling units over existing conditions and as much as 1,433,460 net square feet of nonresidential uses above what is currently assumed in GP 2025. Given that none of these changes to the existing GP 2025 resulting in additional growth were considered in SCAG's growth assumptions in the 2016 RTP/SCS, the emissions inventory in the 2016 AQMP would not have accounted for this additional growth. Therefore, future development under the Project would exceed SCAG's projections in the 2016 RTP/SCS upon which the regional emissions inventory for the Basin in the AQMP was based. As such, the Project would not be consistent with the 2016 AQMP under this criterion. It should be noted that in future updates to the AQMP, the updated growth projections resulting from the Project would eventually be incorporated by SCAG and SCAQMD into their regional planning projections and they would become consistent with the AQMP. However, the growth projects (i.e., Opportunity Sites) facilitated by the Project would not be consistent with the current 2016 AQMP.

Overall, based on the discussion provided for the two criteria above, the Project would not be consistent with the 2016 AQMP. Therefore, this impact is potentially significant. While implementation of Mitigation Measures **MM-AQ-1** and **MM-AQ-2** as discussed under Impact AQ-2 below for future development projects would reduce criteria air pollutant emissions, they would not be able to reduce the emissions associated with build-out of the Project to below SCAQMD's significance thresholds. Additionally, although the general plan amendments, Zoning Code changes, and Specific Plan amendments under the Project would need to be implemented in order to fulfill the City's 6th RHNA cycle requirements, the additional growth facilitated by the Project would remain inconsistent with the current 2016 AQMP.

The City will coordinate with SCAQMD and SCAG to update the AQMP and SIP with the new growth projections due to the implementation of the Project. However, because updates to the regional growth projections and the AQMP would be completed by external agencies (SCAG and SCAQMD) and completed on a fixed schedule, the revisions may not be completed before construction of new development facilitated by the Project (i.e., before any conflict or impact occurs). Until the AQMP and SIP are revised, the Project would result in a significant impact with respect to consistency with the AQMP and SIP. Therefore, impacts would be significant and unavoidable.

Public Safety Element Update and Environmental Justice Policies

As mentioned above, according to SCAQMD, a project is deemed consistent with the 2016 AQMP if it would not result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of air quality standards; and if it is consistent with the demographic and economic assumptions upon which the plan is based. The Public Safety Element Update policies and implementing actions address natural hazards; transportation hazards; police, fire, and emergency services; pandemic preparedness and response; homelessness; and climate change and resiliency. These policies and implementing actions aim to reduce risk to the community and to ensure protection from foreseeable natural and human-caused hazards. Proposed new residential and mixed-use development would be predominantly located in more urbanized areas of the City. Public Safety Element policies and implementing actions could affect the design and construction of planned developments, such as addition of design elements

related to emergency access and pedestrian safety. Public Safety Element policies do not include specific development proposals that would create growth through extension of roads or other infrastructure that is inconsistent with the relevant land use plan.

The Public Safety Element Update policies and implementing actions would also involve additional Environmental Justice Policies to address public safety issues within environmental justice communities. Many Public Safety Element Update policies could result in community benefits. No specific infrastructure improvements or projects are identified in the Public Safety Element Update. As this is a policy document, this update would not conflict with or obstruct implementation of the AQMP. Impacts would be less than significant.

Impact AQ-2: The Project could result in a cumulatively considerable net increase of criteria pollutants for which the Project region is a nonattainment area for an applicable federal or state ambient air quality standard. This impact would be significant and unavoidable with implementation of mitigation.

Housing Element Update, Zoning Code Amendments, and Environmental Justice Policies

Short-Term Construction Emissions

The Project is a policy-level planning document and does not include specific development proposals. However, implementation of the Zoning Code and Specific Plan amendments associated with the Project could allow for additional development over existing conditions, and above what is currently assumed in GP 2025. The Environmental Justice Policies associated with the Housing Element Update, which serve to facilitate equitable distribution of housing throughout the City by promoting housing in response to the needs and desires of the residents of environmental justice communities and facilitate the development of affordable and supportive housing, would not in themselves result in specific development proposals.

The Basin is currently designated as a nonattainment area for the federal and state O_3 and $PM_{2.5}$ standards and a nonattainment area for the state PM_{10} standard. Construction associated with new residential and nonresidential developments accommodated under the Project have the potential to result in cumulatively considerable net increases in O_3 precursors (ROG and NO_X), PM_{10}, and $PM_{2.5}$. Emissions would originate from mobile and stationary construction equipment exhaust, employee and haul truck vehicle exhaust, and activities such as land clearing, demolition, architectural coatings, and asphalt paving. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

By its nature as a policy-level document, the Project does not propose any specific development projects. Rather, construction of new residential and nonresidential developments allowable under the proposed general plan amendments, Zoning Code changes, and Specific Plan amendments would occur intermittently on the identified Opportunity Sites throughout the course of the build-out period. As the timing and intensity of future development projects are not known at this time, the precise effects of construction activities associated with build-out of the Project cannot be accurately quantified at this time. While the details of future development within the Opportunity Sites within the City are currently unknown because development would be driven by market forces and applicants, it is known that implementation of the Project could result in an increase of 31,175 new

dwelling units over existing conditions and as much as 1,433,460 square feet of nonresidential uses at build-out in 2029. As such, it is anticipated that in any given year, multiple residential and/or nonresidential development projects would be constructed on identified Opportunity Sites within the City.

As noted previously, SCAQMD's project-level thresholds were developed to analyze emissions generated by a single development project. While the construction emission impacts associated with each new residential and nonresidential development would be short term in nature (relative to the build-out year) and limited to the period of time when construction activity is taking place for that particular development, the concurrent construction of a multitude of individual development projects that could occur at any one time in the City facilitated by the Project could generate combined criteria pollutant emissions on a daily basis that could exceed SCAQMD's project-level thresholds. Therefore, the Project would implement Mitigation Measure **MM-AQ-1** to help reduce criteria air pollution emissions from future construction-related activities due to the development of the new residential and nonresidential land uses allowable under the Project.

Implementation of Mitigation Measure **MM-AQ-1** would help reduce exhaust- and dust-related criteria air pollution emissions from construction-related activities to the extent feasible. However, construction time frames and equipment for site-specific development projects are not available at this time, and there is a potential for multiple development projects to be constructed at one time, potentially resulting in significant construction-related emissions. The City would need to consider all future Opportunity Site developments subject to CEQA accommodated by the Project requiring approval on a case-by-case basis to ascertain whether an individual development would generate potentially significant air quality impacts during construction, and, where necessary, would require implementation of additional mitigation measures to minimize air emissions and reduce potentially significant impacts. Therefore, despite adherence to Mitigation Measure **MM-AQ-1**, impacts would remain significant and unavoidable. Given the extent of construction activities that would occur in the City over the Housing Element cycle, the construction-related regional air quality impacts would be potentially significant.

Operational Emissions

As noted in Table 3.1-5, adoption of the Project could result in the removal of 389 dwelling units and 1,748,470 square feet of nonresidential uses. These existing and proposed land uses were modeled in CalEEMod for the baseline year of 2021. The implementation of the general plan, Zoning Code, and Specific Plan amendments associated with the Project would allow for the development of up to 31,564 dwelling units and 3,181,930 square feet of nonresidential use, for a new increase of 31,175 dwelling units and 1,433,460 square feet of nonresidential uses over what is currently assumed in GP 2025. These land uses could be built over an 8-year period, starting in 2021, and are assumed for the purposes of this analysis to be fully operational by the year 2029. Table 3.1-8 summarizes the net change in criteria air pollutant emissions associated with operation of the Project.

Table 3.1-8. Project Net Criteria Pollutant Operational Emissions

	Pollutant Emissions (pounds per day)					
Source	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area Sources	678	22	2,372	<1	(15)	(15)
Energy sources	12	97	33	1	8	8

	Pollutant Emissions (pounds per day)					
Source	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Mobile Sources	45	239	2,747	11	76	26
Total Net Project Emissions	**734**	**358**	**5,151**	**12**	**68**	**19**
Regional Significance Thresholds	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	Yes	Yes	Yes	No	No	No

Source: CalEEMod modeling output provided in Appendix C.
Note: Totals may not add up exactly due to rounding.

As shown in Table 3.1-8, implementation of the Project would result in increases of certain criteria air pollutant emissions as compared to existing conditions. These increases would exceed SCAQMD regional significance thresholds for ROG, NO_X, and CO. Conversely, the Project would result in a decrease in PM_{10} and $PM_{2.5}$ emissions as compared to existing conditions if the Opportunity Sites are developed to full build-out. This is due to the adoption of SCAQMD Rule 445 in 2008, which prohibits the installation of wood-burning fireplaces and stoves in new development.

The exceedances of ROG, NO_X, and CO emissions with Project operation are largely due to area sources, which result from architectural coatings (i.e., periodic painting), use of consumer products (i.e., household cleaning products, aerosols), and landscaping associated with both residential and nonresidential uses. Mitigation Measure **MM-AQ-2** contains several strategies for reducing emissions from operational sources, including installation of electrical outlets in residential common areas and use of electrical landscaping equipment. These measures have not been quantified, and it cannot be stated with certainty that emissions would be reduced below significance thresholds with implementation of this mitigation. For this reason, operational emissions would remain significant and unavoidable.

Health Effects

As noted above, the California Supreme Court concluded in the Friant Ranch Decision that environmental documents must attempt to connect a project's regional air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis. Models and tools have been developed to correlate regional criteria pollutant emissions to potential community health impacts. Appendix C summarizes many of these tools, describes their intended application, and analyzes whether they could be used to reasonably correlate project-level emissions to specific health consequences. As described in Appendix C, although models are capable of quantifying data regarding O_3 and secondary PM formation, as well as associated health effects, the tools were developed to support regional planning and policy analysis and have limited sensitivity with respect to small changes in criteria pollutant concentrations induced by individual projects. Therefore, correlating Project-generated criteria pollutants to locations where specific health effects could occur or the resultant number of additional days of nonattainment cannot be achieved with any degree of accuracy for relatively small projects (i.e., relative to the regional air basin).

The technical limitations of existing models for correlating project-level regional emissions to specific health consequences are recognized by air quality management districts throughout the state, including SJVAPCD and SCAQMD, which provided *amici curiae* briefs for the Friant Ranch legal proceedings. In its brief, SJVAPCD acknowledged that health risk assessments (HRAs) for localized air toxics, such as DPM, are commonly prepared; however, "it is not feasible to conduct a similar

analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task." SJVAPCD further noted that emissions solely from the Friant Ranch project, which equate to less than one-tenth of 1 percent of total NO_X and VOCs in the San Joaquin Valley, are not likely to "yield valid information," and that any such information "would not be accurate when applied at the local level" (SJVAPCD 2015b). SCAQMD presents similar information in its brief, stating that "it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels" (SCAQMD 2015b).

As discussed above, SCAQMD's regional thresholds, presented in Section 3.1.3, consider existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed by a wide range of scientific evidence that demonstrates that there are known safe concentrations of criteria pollutants. While recognizing that air quality is a cumulative problem, SCAQMD considers projects that generate criteria pollutant and O_3 precursor emissions below the thresholds to be minor in nature. Such future development projects would not adversely affect air quality to the extent that the health-protective NAAQS or CAAQS would be exceeded. Regional emissions generated by a development project could increase photochemical reactions and the formation of tropospheric O_3 and secondary PM, which, at certain concentrations, could lead to an increased incidence of specific health consequences. Although the health effects are associated with O_3 and particulate pollution, they result from cumulative and regional emissions.

As discussed above, construction time frames and equipment for site-specific development projects within the City are not available at this time and there is a potential for multiple development projects to be constructed at one time, resulting in significant construction-related emissions. Additionally, the Project's operational emissions would exceed SCAQMD's regional significance thresholds for ROG, NO_X, and CO. Implementation of Mitigation Measures **MM-AQ-1** and **MM-AQ-2** would help ensure that the individual developments within the City would not contribute a significant level of air pollution such that regional air quality within the Basin would be degraded. However, because cumulative development within the City would exceed the SCAQMD regional significance thresholds, the Project could contribute to an increase in health effects in the Basin until the attainment standards are met. Accordingly, health impacts related to regional criteria pollutants would be significant and unavoidable.

Public Safety Element Update and Environmental Justice Policies

The Public Safety Element Update policies and implementing actions address natural hazards; transportation hazards; police, fire, and emergency services; pandemic preparedness and response; homelessness; and climate change and resiliency. These policies and implementing actions aim to reduce the risk to the community and to ensure protection from foreseeable natural and human-caused hazards. Proposed new residential and mixed-use development would be predominantly located in more urbanized areas of the City. Public Safety Element policies and implementing actions could affect the design and construction of planned developments, such as addition of design elements related to emergency access and pedestrian safety. Public Safety Element policies do not include specific development proposals that would create growth through extension of roads or other infrastructure that is inconsistent with the relevant land use plan.

The Public Safety Element Update policies and implementing actions would also involve additional Environmental Justice Policies to address public safety issues within environmental justice communities. Many Public Safety Element Update policies could result in community benefits. No specific infrastructure improvements or projects are identified in the Public Safety Element Update.

As this is a policy document, this update would not produce construction or operational criteria air emissions. Impacts would be less than significant.

Mitigation Measures

The potential impacts of the Project described in this section would be reduced with implementation of the following mitigation measures.

MM-AQ-1: Implement measures to reduce construction-related criteria air pollutant emissions.

Prior to approval by the City for non-ministerial projects proposed on Opportunity Sites, applicants shall prepare and submit a technical assessment evaluating potential project construction-related air quality impacts to the Planning Division for review and approval. The evaluation shall be prepared in conformance with SCAQMD methodology for assessing air quality impacts. If construction-related criteria air pollutants are determined to have the potential to exceed the SCAQMD-adopted thresholds of significance, the City shall require that applicants for new development projects incorporate mitigation measures and/or project design features to reduce air pollutant emissions during construction activities. These identified measures shall be incorporated into all appropriate construction documents (e.g., construction management plans or construction drawings) submitted to the City and shall be verified by the City's Building and Safety Division. While specific mitigation measures and/or project design features to reduce construction-related emissions would be determined during project-level analysis, potential mitigation could include, but is not limited to:

- Requiring fugitive-dust control measures that exceed SCAQMD's Rule 403, such as:
  - Use of nontoxic soil stabilizers to reduce wind erosion
  - Applying water every 3 hours to active soil-disturbing activities
  - Tarping and/or maintaining a minimum of 24 inches of freeboard on trucks hauling dirt, sand, soil, or other loose materials
- Using construction equipment rated by EPA as having Tier 3 (model year 2006 or newer) or Tier 4 (model year 2008 or newer) emission limits, applicable for engines between 50 and 750 horsepower
- Ensuring that construction equipment is properly serviced and maintained to the manufacturer's standards
- Limiting nonessential idling of construction equipment to no more than 5 consecutive minutes
- Limiting onsite vehicle travel speeds on unpaved roads to 15 miles per hour
- Installing wheel washers for all exiting trucks or washing all trucks and equipment leaving the project area
- Using Super-Compliant VOC paints for coating of architectural surfaces whenever possible[3]

[3] A list of Super-Compliant architectural coating manufactures can be found on SCAQMD's website at http://www.aqmd.gov/docs/default-source/planning/architectural-coatings/super-compliant-manf-list.pdf?sfvrsn=77.

MM-AQ-2: Implement measures to reduce criteria air pollutant emissions during operation.

Prior to approval by the City for non-ministerial development projects proposed on Opportunity Sites, applicants shall prepare and submit a technical assessment evaluating potential project operation phase-related air quality impacts to the Planning Division for review and approval. The evaluation shall be prepared in conformance with SCAQMD methodology in assessing air quality impacts. If operations-related air pollutants are determined to have the potential to exceed the SCAQMD-adopted thresholds of significance, the Planning Division shall require incorporation of mitigation measures and/or project design features to reduce air pollutant emissions during operational activities, to be included as part of the conditions of approval. Possible mitigation measures and/or project design features to reduce long-term emissions could include, but are not limited to, the following:

- Providing truck delivery and loading areas and truck parking spaces shall include signage as a reminder to limit idling of vehicles while parked for loading/unloading in accordance with CARB Rule 2845 (13 California Code of Regulations Chapter 10 § 2485)
- Providing changing/shower facilities as specified in Section A5.106.4.3 of the California Green Building Standards Code (CALGreen) (Nonresidential Voluntary Measures)
- Providing bicycle parking facilities per Section A4.106.9 (Residential Voluntary Measures) of CALGreen
- Providing preferential parking spaces for low-emitting, fuel-efficient, and carpool/van vehicles per Section A5.106.5.1 of CALGreen (Nonresidential Voluntary Measures)
- Encouraging facilities to support electric charging stations per Section A5.106.5.3 (Nonresidential Voluntary Measures) and Section A5.106.8.2 (Residential Voluntary Measures) of CALGreen
- Providing appliances shall be Energy Star–certified appliances or appliances of equivalent energy efficiency (e.g., dishwashers, refrigerators, clothes washers, and dryers). Installation of Energy Star–certified or equivalent appliances shall be verified by Building & Safety during plan check
- Equipping landscaped common areas with electrical outlets to enable use of electric landscaping equipment to the extent feasible

Impact AQ-3: The Project could result in the exposure of sensitive receptors to substantial pollutant concentrations. The impact would be significant and unavoidable with implementation of mitigation.

Housing Element Update, Zoning Code Amendments, and Environmental Justice Policies

The term *sensitive receptors* refer to uses associated with people who are considered to be more sensitive than others to air pollutants. The reasons for greater-than-average sensitivity include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality–related health problems on average than the general public. Residential areas

are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

Localized Significance Thresholds

LSTs were developed in response to the SCAQMD Governing Board's Environmental Justice Enhancement Initiative. SCAQMD provided the *Final Localized Significance Threshold Methodology* (revised July 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level proposed development projects. SCAQMD provides the LST lookup tables for 1-, 2-, and 5-acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. LSTs are applicable at the project-specific level and generally are not applicable to regional projects such as local general plans.

Construction

The Project is a policy-level planning document with implementing actions and does not include specific development proposals. However, implementation of the general plan, Zoning Code, and Specific Plan amendments associated with the Project would facilitate an increase of new development compared to the existing conditions in the City. The Environmental Justice Policies associated with the Housing Element Update, which serve to facilitate equitable distribution of housing throughout the City by promoting housing in response to the needs and desires of the residents of environmental justice communities and facilitate the development of affordable and supportive housing, would not in themselves result in specific development at the Opportunity Sites.

Because an LST analysis can only be conducted at a project level, quantification of LSTs is not applicable for the program-level environmental analysis of the Project. Because potential development and redevelopment could occur close to existing sensitive receptors, future development projects that would be accommodated by the Project have the potential to expose sensitive receptors to substantial pollutant concentrations. Larger development projects or projects that exceed the LST thresholds within the City would be required to conduct air dispersion modeling, consistent with SCAQMD's LST guidance document, and mitigate impacts accordingly. However, construction equipment exhaust combined with fugitive PM emissions has the potential to expose sensitive receptors to substantial concentrations of criteria air pollutant emissions, as well as DPM, and could result in a significant impact.

Mitigation Measure **MM-AQ-1** would reduce the regional construction emissions associated with build-out of the Project and therefore also result in a reduction of localized construction-related criteria air pollutant and DPM emissions to the extent feasible. However, because existing sensitive receptors may be close to project-related construction activities, construction generated by individual development projects have the potential to exceed SCAQMD's LSTs and a significant and unavoidable impact would occur.

Operations

According to SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed development project if the development includes stationary sources or attracts mobile sources that may spend extended periods queuing and idling at the site

(e.g., warehouse or transfer facilities). Future individual development projects facilitated by the Project could involve combustion of natural gas for space and water heating (i.e., "stationary" sources), and may include nonresidential uses that require queuing and idling of mobile sources for extended periods. However, individual development within the City associated with the Project would occur in incremental phases over time, and these individual projects would each be required to analyze operational LSTs pursuant to SCAQMD guidance. Furthermore, the Project would implement Mitigation Measure **MM-AQ-2**, which would help reduce operational criteria air emissions from individual projects to the extent feasible. However, because existing sensitive receptors may be close to new emissions sources, operational emissions generated by individual development projects have the potential to exceed SCAQMD's LSTs and a significant and unavoidable impact would occur.

Health Risk Assessment

Construction and operation of future development allowed under the Project would increase activities that may expose sensitive receptors to substantial pollutant concentrations. Land uses include a variety of multi-family residential and mixed-use zoning designations, which would include commercial, retail, and office uses within infill areas. Any development projects that propose uses subject to SCAQMD permitting for air toxics (e.g., industrial facilities, dry cleaners, and gasoline-dispensing facilities) would ensure that health risks are minimized. Additionally, Mitigation Measure **MM-AQ-3** would ensure mobile sources of TACs not covered under SCAQMD permits are considered during subsequent project-level environmental review by the City. Individual development projects subject to CEQA that result in emissions below the incremental risk thresholds established by SCAQMD would have TAC impacts that are less than significant. Individual proposed development projects within the City would be required to comply with the most current version of Title 24 of the California Building Standards Code and CALGreen. Currently, these codes require that newer construction include building filtration systems with Minimum Efficiency Report Value (MERV) 13 or higher. MERV 13 filters help reduce $PM_{2.5}$ and PM_{10} emissions by approximately 85 percent. However, implementation of the Project would result in land uses that could generate TACs from both permitted and non-permitted (e.g., trucks) sources that could contribute to elevated levels in the Basin. All construction would be required to comply with SCAQMD rules regulating construction activities, and implementation of Mitigation Measure **MM-AQ-1** would serve to substantially reduce DPM emission from construction activities. While individual projects that are subject to the CEQA process or to SCAQMD permitting requirements would be required to comply with SCAQMD rules and regulations, the Project may introduce uses that could increase TAC emissions that would contribute to the higher levels of risk in the Basin. Therefore, the Project's contribution to health risk is significant and unavoidable.

Carbon Monoxide Hot Spots

A CO hot spot is a localized concentration of CO that is above the state or national 1-hour or 8-hour ambient air standards for the pollutant. CO hot spots at roadway intersections are typically found in areas with substantial traffic congestion. CO is a public health concern because at high enough concentrations, it can cause health problems such as fatigue, headache, confusion, dizziness, and even death. However, it should be noted that ambient concentrations of CO have declined dramatically in California because of existing controls and programs.

As part of SCAQMD's 2003 AQMP, which is the most recent AQMP that addresses CO concentrations, a revision to the Federal Attainment Plan for Carbon Monoxide that was originally approved in 1992

was provided that included a CO hot spots analysis at four specified heavily traveled intersections in Los Angeles at the peak morning and afternoon time periods. These four intersection locations selected by SCAQMD for CO modeling were considered to be the worst-case intersections that would likely experience the highest CO concentrations in the Basin. SCAQMD did not analyze any intersections within Riverside County. The CO hot spots analysis in the 2003 AQMP did not predict a violation of CO standards at the four intersections. Of these four intersections, the busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which was described as the most heavily congested intersection in Los Angeles County, and subsequently the Basin, with an average daily traffic volume of approximately 100,000 vehicles per day. Based on the CO modeling, the 2003 AQMP estimated that the 1-hour and 8-hour concentrations at this intersection were 4.6 ppm and 3.5 ppm, respectively, which would not exceed the most stringent 1-hour CO standard of 20.0 ppm and 8-hour CO standards of 9 ppm.

According to data provided by Fehr and Peers, the roadway segment within the City that would experience the highest level of average daily trips would be Van Buren Boulevard, north of Jurupa Avenue. During the 2040 plus Project scenario, this roadway segment would experience 81,400 average daily trips, which is below the 100,000 vehicles per day modeled in the 2003 AQMP. In addition, the Basin is in attainment for the NAAQS and CAAQS CO standard; as shown in Table 3.1-1, the highest recorded CO hourly concentration at the Riverside-Rubidoux monitoring station was 2.4 ppm in 2017, which is substantially lower than the CAAQS 1-hour threshold of 20 ppm. Therefore, the Project would not contribute a significant level of CO such that localized air quality and human health would be substantially degraded and impacts would be less than significant.

Asbestos

Asbestos is a naturally occurring mineral that was previously used in building construction because of its heat resistance and strong insulating properties. Exposure to airborne dust containing asbestos, however, has been shown to cause many disabling and fatal diseases, including lung cancer, mesothelioma, and pleural plaques. Demolition of existing buildings and hardscape (asphalt and concrete) within the City may expose workers and nearby receptors to asbestos if the material was used during construction of the original buildings and hardscape. However, future development within the City would comply with SCAQMD Rule 1403 (Asbestos Emissions from Demolition/ Renovation Activities). SCAQMD Rule 1403 specifies work practices to limit asbestos emissions from building demolition and renovation activities including the removal and disturbance of ACM. Because the future development projects facilitated by the Project would be required to control asbestos emissions according to SCAQMD regulations, receptors would not be exposed to substantial asbestos risks, and impacts associated with asbestos emissions would be less than significant.

Public Safety Element Update and Environmental Justice Policies

The Public Safety Element Update policies and implementing actions address natural hazards; transportation hazards; police, fire, and emergency services; pandemic preparedness and response; homelessness; and climate change and resiliency. These policies and implementing actions aim to reduce the risk to the community and to ensure protection from foreseeable natural and human-caused hazards. Proposed new residential and mixed-use development would be predominantly located in more urbanized areas of the City. Public Safety Element policies and implementing actions could affect the design and construction of planned developments, such as addition of design elements related to emergency access and pedestrian safety. Public Safety Element policies do not

include specific development proposals that would create growth through extension of roads or other infrastructure that is inconsistent with the relevant land use plan.

The Public Safety Element Update policies and implementing actions would also involve additional Environmental Justice Policies to address public safety issues within environmental justice communities. Many Public Safety Element Update policies could result in community benefits. No specific infrastructure improvements or projects are identified in the Public Safety Element Update. As this is a policy document, this update would not expose sensitive receptors to substantial pollutant concentration and a less-than-significant impact would occur.

Mitigation Measures

The potential impacts of the Project described in this section would be reduced with implementation of the following mitigation measure.

Mitigation Measure MM-AQ-3: Prepare a health risk assessment.

Prior to approval by the City, applicants for Opportunity Site development that (1) have the potential to generate 100 or more diesel truck trips per day or have 40 or more trucks with operating diesel-powered transport refrigeration units, and (2) are within 1,000 feet of a sensitive land use (e.g., residences, schools, hospitals, or nursing homes), as measured from the property line of the project to the property line of the nearest sensitive use, shall submit an HRA to the Planning Division for review and approval. The HRA shall be prepared in accordance with policies and procedures of the state Office of Environmental Health Hazard Assessment and SCAQMD. If the HRA shows that the incremental cancer risk and/or noncancer hazard index exceeds the respective thresholds, as established by SCAQMD at the time a project is considered, the applicant will be required to identify and demonstrate that best available control technologies for toxics, including appropriate enforcement mechanisms, that are capable of reducing potential cancer and noncancer risks are implemented. Best available control technologies for toxics may include, but are not limited to, restricting idling on site or electrifying warehousing docks to reduce DPM or requiring use of newer equipment and/or vehicles. Best available control technologies for toxics identified in the HRA shall be identified as mitigation measures in the environmental document and/or incorporated into the project plans.

3.2 Biological Resources

3.2.1 Introduction

This section describes the environmental and regulatory settings for biological resources for the Project, including land cover types, special-status species, sensitive natural communities, aquatic resources, conservation areas, and wildlife movement and corridors. It also describes the CEQA thresholds of significance and potential impacts on biological resources resulting from implementation of the Project. Where needed, this section identifies mitigation measures that would reduce or avoid any significant impacts on biological resources. Analysis methods, data sources, significance thresholds, and terminology used are described. Details on the location of the Project and a description of Project activities are included in Chapter 2, *Project Description*, of this EIR.

3.2.2 Environmental Setting

Natural Communities and Land Cover Types

The Project is in the South Coast subregion of the southwestern California region and within the California Floristic Province (Baldwin et al. 2012). The natural vegetation of the subregion consists primarily of chaparral, sage scrub, and annual grasslands, with smaller areas of woodland, and riparian scrub and forest. Much of the natural vegetation occurs in preserved open space or fragmented patches in areas that are not developed.

Within Mediterranean climates there can be dramatic differences in rainfall from year to year. As a result, the plant communities growing in these regions often consist of drought-tolerant, woody shrubs and trees, and fall-sprouting grasses.

The majority of the undeveloped lands, open space, and conserved land is at the northern border, along the Santa Ana River corridor, and in the undeveloped foothills, canyons, arroyos, and mountains of Sycamore Canyon Park, Mockingbird Canyon, and Alessandro Heights in the southern portion. These open space areas contain native riparian, grassland, and scrubland habitats that support many native plants and animals, including special-status species and sensitive natural communities. These lands serve as wildlife corridors, which provide areas of undisturbed open space for regional wildlife migration between natural habitats, thereby promoting the proliferation of indigenous animal species. The remainder of the land cover types within the City are residential, commercial, and industrial, including infrastructure-related land cover. There are also agricultural lands within the Arlington Heights Greenbelt.

There are nine major vegetation communities/land cover types within the City (RCA 2012): urban/developed (77 percent); agriculture (7 percent); grassland (6 percent); coastal sage scrub (7 percent); riparian scrub, woodland, and forest (2 percent); woodlands and forest (<1 percent); meadows and marshes (< 1 percent); rock outcrops (< 1 percent); and water (< 1 percent). Each major vegetation community is composed of several habitat types, each with distinctly different plant species compositions, as depicted in Table 3.2-1. Information on vegetation communities and land cover types was obtained from the Western Riverside County Multiple Species Habitat Conservation Plan (WRC MSHCP), Volumes I & II (RCA 2003), Western Riverside County Regional

Conservation Authority (RCA) Western Riverside Vegetation Map (RCA 2012), and Section 5.4 of the *Riverside General Plan 2025* (GP 2025) EIR (City of Riverside 2007a). This information was based on extensive land cover mapping conducted for the WRC MSHCP study area, which includes the City, and, therefore, represents the best available landscape-scale data on biological resources in the City (see Section 3.2.4, *Methodology and Thresholds of Significance*, for land cover mapping methods and data sources used).

Table 3.2-1. Natural Communities and Land-Cover Types in the City

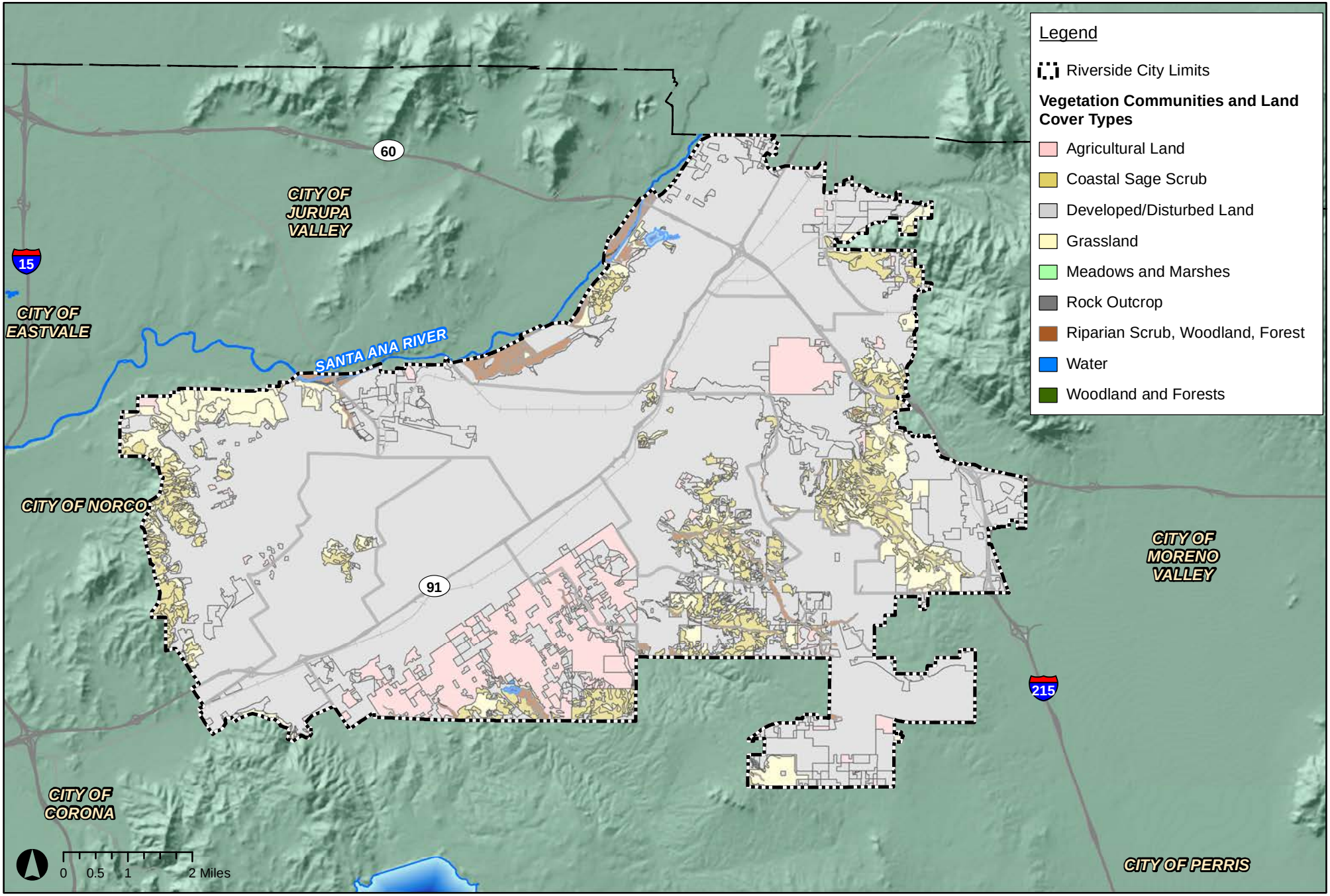
Natural Community/Land Cover Type	Total Acres in City
Natural Communities	
Riparian Scrub, Woodland, and Forest	1,098.90 (2% of City)
Arundo/Riparian Forest	6.21
Mulefat Scrub	206.96
Southern Willow Scrub	388.65
Southern Riparian Forest	54.86
Southern Cottonwood-Willow Riparian Forest	388.26
Southern Sycamore-Alder Riparian Woodland	53.96
Meadows and Marshes	0.72 (<1% of City)
Marsh	0.72
Coastal Sage Scrub	3,406.78 (7% of City)
Coastal Scrub	3,386.97
Riversidean Sage Scrub	19.81
Woodlands and Forest	5.93 (<1% of City)
Peninsular Juniper Woodland and Scrub	5.93
Grassland	3,301.52 (6% of City)
Non-Native Grassland	3,301.52
Rock Outcrops	0.98 (<1% of City)
Rock Outcrops	0.98
Water	93.46 (<1% of City)
Open Water/Reservoir	93.46
Natural Communities Subtotal	*7,908.29*
Other Land Cover Types	
Agricultural Land	3,833.84 (7% of City)
Grove/Orchard	3,833.84
Developed	40,444.95 (77% of City)
Urban/Developed	40,444.95
Total	**52,187.09**

Source: RCA 2012.

Descriptions of the natural communities and other land cover types occurring within the City are provided below and illustrated on Figure 3.2-1. These descriptions contain information summarized from WRC MSHCP, Volumes I & II (RCA 2003) and Section 5.4 of the GP 2025 EIR (City of Riverside 2007a), which contain additional detailed information about these communities and their habitat types.

Figure 3.2-1

Vegetation Communities and Land Cover Types within the City



Riparian Scrub, Woodland, and Forest

Riparian vegetation, including scrub, woodland, and forest subtypes, is distributed in waterways and drainages throughout the City, covering approximately 2 percent (1,098.90 acres) of the City. This community includes the sub-categories of arundo/riparian forest, mulefat scrub, southern willow scrub, southern riparian forest, southern cottonwood-willow riparian forest, and southern sycamore-alder riparian woodland.

As described in the WRC MSHCP, riparian communities typically consist of one or more deciduous tree species with an assorted understory of shrubs and herbs (Holland and Keil 1995). Depending on community type, a riparian community may be dominated by any of several trees/shrubs, including box elder (*Acer negundo*), big-leaf maple (*A. macrophyllum*), coast live oak (*Q. agrifolia*), white alder (*Alnus rhombifolia*), western sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), California walnut (*Juglans californica*), Mexican elderberry (*Sambucus mexicana*), wild grape (*Vitis girdiana*), giant reed (*Arundo donax*), mulefat (*Baccharis salicifolia*), tamarisk (*Tamarix* spp.), or any of several species of willow (*Salix* spp.). In addition, various understory herbs may be present, such as salt grass (*Distichlis spicata*), wild cucumber (*Marah macrocarpus*), mugwort (*Artemisia douglasiana*), stinging nettle (*Urtica dioica*), and poison oak (*Toxicodendron diversilobum*).

Riparian woodlands are dependent on the presence of or proximity to non-seasonal water sources. The water may be surface water or shallow ground water. Riparian woodlands may measure a few meters in width to much broader depending on water flow. Where non-seasonal streams flow out of the mountains and onto flatter grasslands, the riparian woodland community may be a relatively broad one, but in the higher elevations where water flows down a narrow passageway often confined by steep hillsides, this community may be very narrow. Riparian woodland may also occupy areas surrounding human-made lakes and reservoirs.

The presence of perennial water in the Santa Ana River, Tequesquite Arroyo, Sycamore Canyon, and Box Springs Canyon has supported the development of riparian woodland plant communities at scattered locations throughout the City.

Arundo/Riparian Forest

Arundo/riparian forests are characterized by dense impenetrable stands of riparian vegetation dominated or exclusively composed of giant reed. The California Invasive Plant Council (Cal-ICP) includes giant reed on its "Exotic Pest Plants of Greatest Ecological Concern in California" list. Giant reed is documented as a widespread, aggressive invader that displaces native plant species and disrupts natural habitats. Giant reed is suited to tropical, subtropical, and warm temperate climates of the world. Although it tolerates some salt and can grow on sand dunes, giant reed grows best along riverbanks and in other wet places. Giant reed is best developed in poor sandy soil but is tolerant of all types of soils, from heavy clays to loose sands and gravelly soils.

Arundo/riparian forests are known to occur along the Santa Ana River near Van Buren Boulevard at the City's northern boundary. This community is also found along lakes, rivers, and other drainages throughout the City.

Mulefat Scrub

Mulefat scrub is characterized by tall, herbaceous riparian scrub strongly dominated by mulefat. This early successional community is maintained by frequent flooding. Absent this, most stands would succeed to cottonwood- or sycamore-dominated riparian forests or woodlands. Mulefat scrub occurs in intermittent stream channels with fairly coarse substrate and moderate depth to the water table.

Mulefat scrub is known to occur south of Indiana Avenue between Buchanan Street and McKinley Street. This community may also be found along lakes, rivers, and other drainages throughout the City.

Southern Willow Scrub

Southern willow scrub is distinguished by dense, broadleaved, winter-deciduous riparian thickets dominated by several willow species including black willow (*Salix gooddingii*), sandbar willow (*S. hindsiana*), red willow (*S. laevigata*), Pacific willow (*S. lasiandra*), and arroyo willow (*S. lasiolepis*), with scattered Fremont cottonwood and western sycamore. Most stands are too dense to allow much understory development. Typical soils include loose, sandy, or fine gravelly alluvium deposited near stream channels during flood flows. This community requires repeated flooding to prevent succession to southern cottonwood sycamore riparian forest. Southern willow scrub was formerly extensive along the major rivers of coastal Southern California but is now much reduced by urban expansion, flood control, and channel improvements.

Southern willow scrub exists along two tributaries to a small reservoir, approximately 1.5 miles southwest of Mockingbird Reservoir. This community may also be found along lakes, rivers, and other drainages throughout the City.

Southern Riparian Forest

Southern riparian forest communities are characterized by wetland species dominated by cottonwoods (*Populus* spp.), big leaf maple (*Acer macrophyllum*), willows, and/or western sycamore. These species may be sole dominants or mixed dominance. The tree canopy is typically continuous with sparse shrub and herb layers forming the understory. These communities are periodically flooded or saturated with water.

Southern riparian forests can be found along lakes, rivers, and other drainages throughout the City.

Southern Cottonwood-Willow Riparian Forest

Southern cottonwood-willow riparian forests are tall, open, broadleaved winter-deciduous riparian forests dominated by Fremont cottonwood, black cottonwood (*Populus trichocarpa*) and several tree willows. Understories consist of shrubby willows. The dominant species require moist, bare mineral soil. Sub-irrigated and frequently overflowed lands along rivers and streams provide the necessary conditions for germination and establishment. Other typical plant species include California mugwort, mulefat, wild cucumber, western sycamore, Goodding's black willow, sandbar willow, pacific willow, arroyo willow, and stinging nettle (*Urtica holosericea*).

This community can be found along lakes and drainages throughout the City.

Southern Sycamore-Alder Riparian Woodland

Southern sycamore-alder riparian woodland is a tall, open, broadleaved, winter-deciduous streamside woodland dominated by western sycamore and white alder (*Alnus rhombifolia*). These stands seldom form closed canopy forests and may appear as trees scattered in a shrubby thicket of hard drought-resistant evergreens and deciduous species. Soils consist of very rocky streambeds subject to seasonally high-intensity flooding. White alder increases in abundance on more perennial streams, while western sycamore favors more intermittent hydrographs. Other common forms of vegetation include big-leaf maple, California mugwort, coast live oak (*Quercus agrifolia*), elk clover (*Aralia californica*), horsetail (*Equisetum hymale*), smilo grass (*Piptatherum miiaceum*), California blackberry (*Rubus ursinus*), poison oak, Mexican elderberry (*Sambucus mexicana*), California bay laurel (*Umbellularia californica*), and stinging nettle.

This community may be found along lakes, rivers, and other drainages throughout the City.

Meadows and Marshes

The meadows and marshes community type comprises <1 percent (0.72 acre) of the City and includes the marsh subcategory.

Marsh

Marsh communities are dominated by perennial, emergent flowering plants generally up to 13–16 feet tall. Vegetation often forms completely closed canopies. Bull rush (*Scirpus* spp.) and cattail (*Typha* spp.) species dominate. Marsh communities are found on sites permanently flooded by fresh water and lacking significant current. Conditions of prolonged saturation permit accumulation of deep, peaty soils in this community.

Marsh habitat exists along the Santa Ana River and in Arlington Heights within the City. This community may also be found along lakes, rivers, and other drainages throughout the City.

Coastal Sage Scrub

The coastal sage scrub community type comprises 7 percent (3,406.78 acres) of the City and includes the coastal scrub and Riversidean sage scrub subcategories.

Coastal Scrub

Coastal scrub is composed of many different assemblages of scrub vegetation. Within the City, coastal scrub and Riversidean sage scrub have been known to occur, with coastal scrub being the most commonly found, but this diverse plant community can be subdivided into numerous "alliances" that are named according to which shrub species are the most abundant at a particular site.

As described in the WRC MSHCP, coastal scrub is dominated by a characteristic suite of low-statured, aromatic, drought-deciduous shrubs and subshrub species. Composition varies substantially depending on physical circumstances and the successional status of the Vegetation Community; however, characteristic species include California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), laurel sumac (*Malosma laurina*), California encelia (*Encelia californica*), and several species of sage (e.g., *Salvia mellifera*, *S. apiana*) (Holland 1986; Sawyer et al. 2009). Other common species include brittlebush (*E. farinosa*), lemonadeberry (*Rhus*

integrifolia), sugarbush (*Rhus ovata*), yellow bush penstemon (*Keckiella antirrhinoides*), Mexican elderberry, sweetbush (*Bebbia juncea*), boxthorn (*Lycium* spp.), shore cactus (*Opuntia littoralis*), coastal cholla (*O. prolifera*), tall prickly-pear (*Opuntia oricola*), and species of *Dudleya*. The California Native Plant Society (CNPS) notes additional species that may be present in scrub communities. These include common herbaceous perennials such as the wishbone plant (*Mirabilis laevis*), climbing milkweed (*Funastrum cynanchoides* ssp. *hartwegii*), and wild cucumber. The areas between shrubs are rich in annual herbaceous species in the spring during good rainfall years, especially in the first few years after wildfires. Some notable, common annuals include California poppy (*Eschscholzia californica*), baby blue eyes (*Nemophila menziesii*), popcorn flowers (*Cryptantha intermedia*), slender goldfields (*Lasthenia gracilis*), southern goldfields (*Lasthenia coronaria*), and tidy-tips (*Layia plattyglossa*). In rocky ravines and places where the soil accumulates moisture, occasional stands of the deep-rooted evergreen shrubs, such as laurel sumac and sugar bush (*Rhus ovata*), may occur. The rocky ravines with ephemeral watercourses often support stands of giant wildrye (*Leymus condensatus*) and Mexican elderberry. The relative abundance and dominance of species varies from place to place such that numerous "series" or "alliances" of coastal scrub can be named based on the dominant species. For example, one common alliance in the City is the *Artemisia californica–Eriogonum fasciculatum* alliance. Another is the *Encelia farinosa–Eriogonum fasciculatum* alliance. A less common series type is the *Salvia mellifera–Artemisia californica* alliance.

Within the City, coastal scrub is found on steep slopes in the southern hillsides, as well as at Sycamore Canyon, Alessandro Hills, Box Springs Mountain, Arlington Heights, and Woodcrest.

Riversidean Sage Scrub

Typical stands of Riversidean sage scrub are fairly open and dominated by California sagebrush, California buckwheat, and red brome (*Bromus rubens*), each attaining at least 20 percent cover. Riversidean sage scrub is scattered throughout the southeastern half and eastern and western edges of the City.

Woodlands and Forest

The woodlands and forest community type comprises <1 percent (5.93 acres) of the City and is composed of the Peninsular juniper woodland and scrub subcategory.

Peninsular Juniper Woodland and Scrub

Peninsular juniper woodland and scrub is dominated by California juniper (*Juniperus californica*). This community exists on dry alluvial fans and desert slopes. Litter layers are restricted to directly beneath the tree driplines, and fuel loads usually are insufficient to carry a fire. This woodland species does not tolerate fire. Burning usually leads to the formation of semidesert chaparral communities. Within the City, juniper woodland is in the southeastern portion of the City within Sycamore Canyon.

Grassland

The grassland community type comprises 6 percent (3,301.52 acres) of the City and includes the non-native grassland subcategory.

Non-Native Grassland

Non-native grassland is characterized by a dense to sparse cover of annual grasses with flowering culms (stems) 0.66–1.64 feet high. The community is often associated with numerous species of showy-flowered, native wildflowers, especially in years of favorable rainfall. Flowering occurs with the onset of the late fall rains, and growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds. Non-native grasslands occur on fine-textured, usually clay soils that are moist or even waterlogged during the winter rainy season and very dry during the summer and fall. Adjacent communities may include oak woodland on moister, better-drained soils. Non-native grasslands can be found in valleys and foothills throughout most of California.

The majority of flatter terrain in undeveloped portions of the City is dominated by introduced annual grasses. Non-native grassland is present in large expanses of Sycamore Canyon, Alessandro Hills, Box Springs Mountain and Canyon, the La Sierra/Norco Hills, and the gently rolling slopes of Santa Ana River Regional Park adjacent to the Santa Ana River.

Rock Outcrops

Rock outcrops are limited to the Box Spring Mountains portion of the City, occupying approximately <1 percent (0.98 acre) of the City.

Rock Outcrops

The rock outcrops natural community type in the City includes areas that consist of a variety of near barren and sparsely vegetated substrates within the rocky slopes, cliffs, and outcrops of the Box Springs foothill and mountain ranges.

Water

The water community type comprises <1 percent (93.46 acres) of the City and includes the subcategory of open water/reservoir.

Open Water/Reservoir

Open water/reservoir habitats are called lacustrine habitats and are characterized by inland depressions or dammed riverine channels containing standing water, including both the nearshore (limnetic) and deepwater habitat (littoral). Usually, to meet this criterion, each area must exceed 20 acres and be deeper than 6.6 feet. Lake Evans and Mockingbird Canyon Reservoir are classified as open water/reservoir habitats within the City.

An additional ecosystem lying along the northern edge of the City is the Southern California arroyo chub/Santa Ana sucker streams that exist along the Santa Ana River and its tributaries, including Chino Creek, Aliso Creek, and Sunnyslope Creek in San Bernardino, Riverside, and Orange Counties. These streams range from Mount Rubidoux downstream to northeastern Anaheim. The best habitat is found below the Riverside Narrows where ground water is forced to the surface and flows become more perennial and stable.

Agricultural Land

Agricultural land may be defined broadly as land used primarily for production of food and fiber and includes crop fields, orchards, vineyards, and grazing lands. The number of buildings is smaller and the density of the road and highway network much lower in agricultural land than in urban or developed land. When wetlands are drained for agricultural purposes, they are included in the agriculture category. Agricultural lands that are no longer in use and where wetlands vegetation has reestablished are included in the wetlands category.

The agricultural land community type comprises 7 percent (3,833.84 acres) of the City and includes the grove/orchard subcategory.

Grove/Orchard

The Arlington Heights Greenbelt is still characterized by agricultural uses, primarily in the form of citrus orchards and nursery stockyards. The City's Sphere of Influence also still contains large citrus groves, especially in the Highgrove and Woodcrest areas; however, over time, many of the large agricultural and citriculture areas have been converted to suburban uses.

Urban/Developed

Urban or developed land consists of areas of intensive use with much of the land covered by structures. Included in this category are cities, transportation facilities, power and communications facilities, residences, shopping centers, industrial and commercial complexes, and institutions that may, in some instances, be isolated from urban areas. Agricultural land, wetland, or water areas on the fringe of urban or built-up areas are not included in this category except where they are surrounded and dominated by urban development.

The City is predominantly urban/developed, comprising 77 percent (40,444.95 acres) of the land use, with peripheral areas of open space characterized by agriculture (Arlington Heights Greenbelt) and native vegetation (e.g., La Sierra/Norco Hills, Sycamore Canyon Park, and arroyos).

Wildlife

The undeveloped lands, open space, and conserved lands along the Santa Ana River corridor in the northern portion of the City, and the undeveloped foothills, canyons, arroyos, and mountains in the southern portion of the City (e.g., Sycamore Canyon Park, Mockingbird Canyon, Box Springs Mountain Regional Park, Box Springs Canyon, Alessandro Heights Hills) contain native habitats that support many native plants and animals, including special-status species and sensitive natural communities.

Natural habitats such as riparian, scrubland, and woodland communities provide wildlife with dispersal and migration corridors and foraging areas, cover, and breeding habitat. Many species of birds, mammals, reptiles, and amphibians are known to use riparian communities and other woody vegetation communities near watercourses. Riparian trees provide suitable nesting and roosting habitat for a variety of raptors, egrets, herons, songbirds, and bats. Numerous rodents, deer, and other herbivores are common in scrubland communities, and oak woodlands provide nesting, foraging, and cover for a variety of species.

Birds known to nest in these communities include red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperii*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), Nuttall's

woodpecker (*Picoides nuttallii*), downy woodpecker (*Picoides pubescens*), acorn woodpecker (*Melanerpes formicivorus*), northern flicker (*Colaptes auratus*), northern mockingbird (*Mimus polyglottos*), western scrub-jay (*Aphelocoma californica*), California towhee (*Pipilo crissalis*), spotted towhee (*Pipilo maculates*), Bewick's wren (*Thryomanes bewickii*), wrentit (*Chamaea fasciata*), coastal California gnatcatcher (*Polioptila californica californica*), black phoebe (*Sayornis nigricans*), least Bell's vireo (*Vireo bellii pusillus*), common yellowthroat (*Geothlypis trichas*), yellow warbler (*Setophaga petechia*), yellow-breasted chat (*Icteria virens*), house wren (*Troglodytes aedon*), bushtit (*Psaltriparus minimus*), and song sparrow (*Melospiza melodia*).

Bat species known to use these habitats for roosting include California myotis (*Myotis californicus*), Yuma myotis (*Myotis yumanensis*), hoary bat (*Lasiurus cinereus*), western red bat (*Lasiurus blossevillii*), western yellow bat (*Lasiurus xanthinus*), and pallid bat (*Antrozous pallidus*). Other mammal species known to use these communities include gray fox (*Urocyon cinereoargenteus*), American beaver (*Castor canadensis*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), black-tailed deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), western gray squirrel (*Sciurus griseus*), brush mouse (*Peromyscus boylii*), pocket mouse (*Chaetodipus* spp. and *Perognathus* spp.), woodrats (*Neotoma* spp.), and kangaroo rats (*Dipodomys* spp.).

Reptiles—including coast horned lizard (*Phrynosoma blainvillii*), common garter snake (*Thamnophis sirtalis*), gopher snake (*Pituophis catenifer*), California kingsnake (*Lampropeltis getulus californiae*), western fence lizard (*Sceloporus occidentalis*), and western pond turtle (*Actinemys marmorata*)—and amphibians—including Baja California treefrog (*Pseudacris hypochondriaca*), western toad (*Anaxyrus boreas*), and bullfrog (*Lithobates catesbeianus*)—are also associated with these communities.

Fish such as Santa Ana sucker (*Catostomus santaanae*) and Santa Ana speckled dace (*Rhinichthys osculus* ssp. 3) utilize stream reaches that have riparian vegetation. Overhanging riparian vegetation along watercourses provides rearing areas, cover, and food resources.

Special-Status Species

Special-status species are defined as plants and animals that are legally protected under the Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as species in any of the categories listed below:

- Species that are listed or proposed for listing as threatened or endangered under the FESA (50 Code of Federal Regulations [CFR] 17.11 for listed animals and various notices in the *Federal Register* (FR) for proposed species)
- Species that are candidates for possible future listing as threatened or endangered under FESA (75 FR 69222)
- Species listed or proposed for listing by the state as threatened or endangered under CESA (14 California Code of Regulations 670.5)
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380)
- Animals listed as California species of special concern on California Department of Fish and Wildlife's (CDFW) Special Animals List (CDFW 2021b)

- Animals that are fully protected in California under the California Fish and Game Code (CFGC) (Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians])
- Plants listed as rare under the California Native Plant Protection Act (CFGC Section 1900 et seq.)
- Plants considered by CDFW and the CNPS to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1A, 1B, and 2) (CNPS 2021)

Database queries of the above listed resources were conducted for the U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles containing the City. Quadrangles queried included Corona North, Riverside West, Riverside East, Fontana, San Bernardino South, and Steele Peak.

Special-Status Plants

Based on the U.S. Fish and Wildlife Service (USFWS) (2021a) species list, California Natural Diversity Database (CNDDB) (CDFW 2021a) records search, and the CNPS (2021) inventory search for the City, 44 special-status plant species have the potential to occur in the City. Of these, 38 were determined to occur or potentially occur within the natural community types in the City (Table 3.2-2). The remaining six species were determined to be unlikely to occur in the City because they inhabit natural communities (e.g., tidal marshes) that do not occur within the City, because their elevation ranges are outside of the elevations in the City, or because known extant population ranges occur outside of the City. These six species are not discussed further in this EIR. Special-status plant species and their habitat requirements, regulatory status, and potential for occurrence within the City are detailed in Appendix D.

Special-Status Wildlife

Based on the USFWS (2021a) species list and CNDDB records search (CDFW 2021a) for the City, 43 special-status wildlife species have the potential to occur within the City. Of these, 37 were determined to occur or potentially occur within the natural community types in the City (Table 3.2-2). The remaining six species were determined to be unlikely to occur in the City because they inhabit natural communities (e.g., tidal marshes) that do not occur within the City or known extant population ranges occur outside of the City. These six species are not discussed further in this EIR. Special-status wildlife species and their habitat requirements, regulatory status, and potential for occurrence within the City are detailed in Appendix D.

Table 3.2-2. Special-Status Plant and Animal Species with the Potential to Occur in the City

Common/Scientific Name	Status[1] Fed/State/CRPR/WRC MSHCP
Plants	
Alvin Meadow bedstraw (*Galium californicum* ssp. *primum*)	–/–/1B.2/ MSHCP(f)
Brand's star phacelia (*Phacelia stellaris*)	–/–/1B.1/ MSHCP(b)
chaparral ragwort (*Senecio aphanactis*)	–/–/2B.2/–
chaparral sand-verbena (*Abronia villosa* var. *aurita*)	–/–/1B.1/–
Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*)	–/–/1B.1/ MSHCP(d)
Coulter's matilija poppy (*Romneya coulteri*)	–/–/4.2/MSHCP
Horn's milk-vetch (*Astragalus hornii* var. *hornii*)	–/–/1B.1/–
little mousetail (*Myosurus minimus* ssp. *apus*)	–/–/3.1/ MSHCP(d)

Common/Scientific Name	Status[1] Fed/State/CRPR/WRC MSHCP
long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*)	–/–/1B.2/MSHCP
Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*)	–/–/1A/–
many-stemmed dudleya (*Dudleya multicaulis*)	–/–/1B.2/ MSHCP(b)
mesa horkelia (*Horkelia cuneata* var. *puberula*)	–/–/1B.1/–
Munz's onion (*Allium munzii*)	E/T/1B.1/ MSHCP(b)
Nevin's barberry (*Berberis nevinii*)	E/E/1B.1/ MSHCP(d)
Palmer's grapplinghook (*Harpagonella palmeri*)	–/–/4.2/MSHCP
paniculate tarplant (*Deinandra paniculata*)	–/–/4.2/–
Parish's bush-mallow (*Malacothamnus parishii*)	–/–/1A/–
Parish's gooseberry (*Ribes divaricatum* var. *parishii*)	–/–/1A/–
Parry's spineflower (*Chorizanthe parryi* var. *parryi*)	–/–/1B.1/ MSHCP(e)
Payson's jewel-flower (*Caulanthus simulans*)	–/–/4.2/MSHCP
Peninsular spineflower (*Chorizanthe leptotheca*)	–/–/4.2/MSHCP
Peruvian dodder (*Cuscuta obtusiflora* var. *glandulosa*)	–/–/2B.2/–
Plummer's mariposa lily (*Calochortus plummerae*)	–/–/4.2/ MSHCP(e)
prairie wedge grass (*Sphenopholis obtusata*)	–/–/2B.2/–
Pringle's monardella (*Monardella pringlei*)	–/–/1A/–
Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*)	–/–/4.3/–
salt spring checkerbloom (*Sidalcea neomexicana*)	–/–/2B.2/–
San Bernardino aster (*Symphyotrichum defoliatum*)	–/–/1B.2/–
San Diego ambrosia (*Ambrosia pumila*)	E/–/1B.1/ MSHCP(b)
Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*)	E/E/1B.1/MSHCP
slender-horned spineflower (*Dodecahema leptoceras*)	E/E/1B.1/ MSHCP(b)
small-flowered morning-glory (*Convolvulus simulans*)	–/–/4.2/MSHCP
smooth tarplant (*Centromadia pungens* ssp. *laevis*)	–/–/1B.1/ MSHCP(d)
snake cholla (*Cylindropuntia californica* var. *californica*)	–/–/1B.1/–
spreading navarretia (*Navarretia fossalis*)	T/–/1B.1/ MSHCP(b)
thread-leaved brodiaea (*Brodiaea filifolia*)	T/E/1B.1/ MSHCP(d)
western spleenwort (*Asplenium vespertinum*)	–/–/4.2/–
woven-spored lichen (*Texosporium sancti-jacobi*)	–/–/3/–
Invertebrates	
Crotch bumble bee (*Bombus crotchii*)	–/CE/–/–
Quino checkerspot butterfly (*Euphydryas editha quino*)	E/–/–/MSHCP
Riverside fairy shrimp (*Streptocephalus woottoni*)	E/–/–/ MSHCP(a)
vernal pool fairy shrimp (*Branchinecta lynchi*)	T/–/–/ MSHCP(a)
Fish	
arroyo chub (*Gila orcuttii*)	–/CSC/–/MSHCP
Santa Ana speckled dace (*Rhinichthys osculus* ssp. *3*)	–/CSC/–/–
Santa Ana sucker (*Catostomus santaanae*)	T/–/–/MSHCP
Amphibians	
western spadefoot (*Spea hammondii*)	–/CSC/–/MSHCP

Common/Scientific Name	Status[1] Fed/State/CRPR/WRC MSHCP
Reptiles	
California glossy snake (*Arizona elegans occidentalis*)	–/CSC/–/–
coast horned lizard (*Phrynosoma blainvillii*)	–/CSC/–/MSHCP
coastal whiptail (*Aspidoscelis tigris stejnegeri*)	–/CSC/–/MSHCP
red-diamond rattlesnake (*Crotalus ruber*)	–/CSC/–/MSHCP
San Diego banded gecko (*Coleonyx variegatus abbotti*)	–/CSC/–/MSHCP
southern California legless lizard (*Anniella stebbinsi*)	–/CSC/–/–
western pond turtle (*Emys marmorata*)	–/CSC/–/MSHCP
Birds	
burrowing owl (*Athene cunicularia*)	–/CSC/–/MSHCP(c)
coastal California gnatcatcher (*Polioptila californica californica*)	T/CSC/–/MSHCP
least Bell's vireo (*Vireo bellii pusillus*)	E/E/–/MSHCP(a)
loggerhead shrike (*Lanius ludovicianus*)	–/CSC/–/MSHCP
long-eared owl (*Asio otus*)	–/CSC/–/–
southwestern willow flycatcher (*Empidonax traillii extimus*)	E/E/–/MSHCP(a)
Swainson's hawk (*Buteo swainsoni*)	–/T/–/MSCHP
tricolored blackbird (*Agelaius tricolor*)	–/CT/–/MSHCP
white-tailed kite (*Elanus leucurus*)	–/FP/–/MSHCP
yellow warbler (*Setophaga petechia*)	–/CSC/–/MSHCP
yellow-breasted chat (*Icteria virens*)	–/CSC/–/MSHCP
Mammals	
American badger (*Taxidea taxus*)	–/CSC/–/–
Los Angeles pocket mouse (*Perognathus longimembris brevinasus*)	–/CSC/–/ MSHCP(c)
northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	–/CSC/–/MSHCP
pocketed free-tailed bat (*Nyctinomops femorosaccus*)	–/CSC/–/–
San Bernardino kangaroo rat (*Dipodomys merriami parvus*)	E/CSC/–/MSHCP(c)
San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)	–/CSC/–/MSHCP
San Diego desert woodrat (*Neotoma bryanti intermedia*)	–/CSC/–/MSHCP
southern grasshopper mouse (*Onychomys torridus ramona*)	–/CSC/–/–
Stephens' kangaroo rat (*Dipodomys stephensi*)	E/T/–/MSHCP
western mastiff bat (*Eumops perotis californicus*)	–/CSC/–/–
western yellow bat (*Lasiurus xanthinus*)	–/CSC/–/–

[1] E = Endangered, T = Threatened, CT = Candidate Threatened, FP = Fully Protected, CSC = California Species of Concern

CRPR definitions:

1A = Plants presumed extinct in California
1B = Plants rare, threatened, or endangered in California and elsewhere
2 = Plants rare, threatened, or endangered in California, but more common elsewhere
3 = Plants about which we need more information
4 = Limited distribution (Watch List)
0.1 = Seriously endangered in California
0.2 = Fairly endangered in California
0.3 = Not very endangered in California

WRC MSHCP codes:
WRC MSHCP = No additional action necessary
WRC MSHCP(a) = Surveys may be required as part of wetlands mapping
WRC MSHCP(b) = Surveys may be required within the Narrow Endemic Plant Species survey area
WRC MSHCP(c) = Surveys may be required within locations shown on survey maps
WRC MSHCP(d) = Surveys may be required within Criteria Area
WRC MSHCP(e) = Conservation requirements identified in species-specific conservation objectives need to be met before classified as a Covered Species

Sensitive Natural Communities

Seven vegetation communities classified by CDFW as sensitive natural communities are reported to occur within the USGS Corona North, Riverside West, Riverside East, Fontana, San Bernardino South, and Steele Peak 7.5-minute topographic quadrangles, based on the record search (CDFW 2021a). Based on an analysis of aerial photographs of the City, as well as Classification and Assessment with Landsat of Visible Ecological Groupings (CalVeg) and WRC MSHCP vegetation layers, sensitive natural communities are present within the City, including coastal scrub, riparian scrub/woodland/forest, woodlands/forests, marsh, and open water/riverine.

Critical Habitat

Designated critical habitat for two federally listed species totaling 743.73 acres occurs within the City, including critical habitat for Santa Ana sucker and least Bell's vireo (USFWS 2021b) (Table 3.2-3). All critical habitat within the City is along the Santa Ana River; no critical habitat is present within the rest of the City (Figure 3.2-2).

Table 3.2-3. Critical Habitat in the City

Critical Habitat	Total Acres
Santa Ana sucker	420.65
least Bell's vireo	323.08
Total	**743.73**

Aquatic Resources

The primary aquatic resource within the City is the Santa Ana River, which runs along the northern edge of the City. This portion of the river is earthen (soft) bottom and is unconfined with an active floodplain and historical floodplain. There are additional aquatic resources within the City that are tributary to the Santa Ana River, described in more detail below.

The major tributaries to the Santa Ana River in the City include the Riverside Canal, Sycamore Canyon, Gage Canal, Springbrook Wash Arroyo, Tequesquite Arroyo, Alessandro Arroyo, Prenda Arroyo, Woodcrest Arroyo, and Mockingbird Canyon Arroyo. Portions of these tributaries are in their natural state, portions are disturbed by human activities, and portions are piped under the urbanized areas of the City before they reach the Santa Ana River.

Springbrook Wash Arroyo originates in the Box Springs Mountains and flows to the Santa Ana River. Approximately 20 percent of the stream channel is cemented, with some portions of the wash containing native riparian vegetation (City of Riverside 2007a).

Tequesquite Arroyo runs northwest then west through the City, passing through two golf courses, Andulka Park, Riverside City College, the Evans Sports Complex, and Tequesquite Park before flowing into the Santa Ana River. It is partially channelized at the golf courses and when it passes through Downtown. The banks have been planted with non-native grasses at the golf courses.

The Woodcrest, Prenda, Alessandro, and Mockingbird Arroyos all originate in the southerly hills of Riverside and flow to the Santa Ana River. All of these arroyos are largely in a natural condition south of State Route 91 within the Arlington Heights Greenbelt and Alessandro Heights area. Each is also constrained with a dam as shown in Figure PS-4 (Flood Hazard Areas) in the Public Safety Element of GP 2025. North of State Route 91, the arroyos are channelized or undergrounded en route to the Santa Ana River.

In addition to the aquatic resources identified within this EIR, there is the potential for additional, smaller jurisdictional features to occur throughout the City, including ditches, channels, ephemeral drainages, and wetlands.

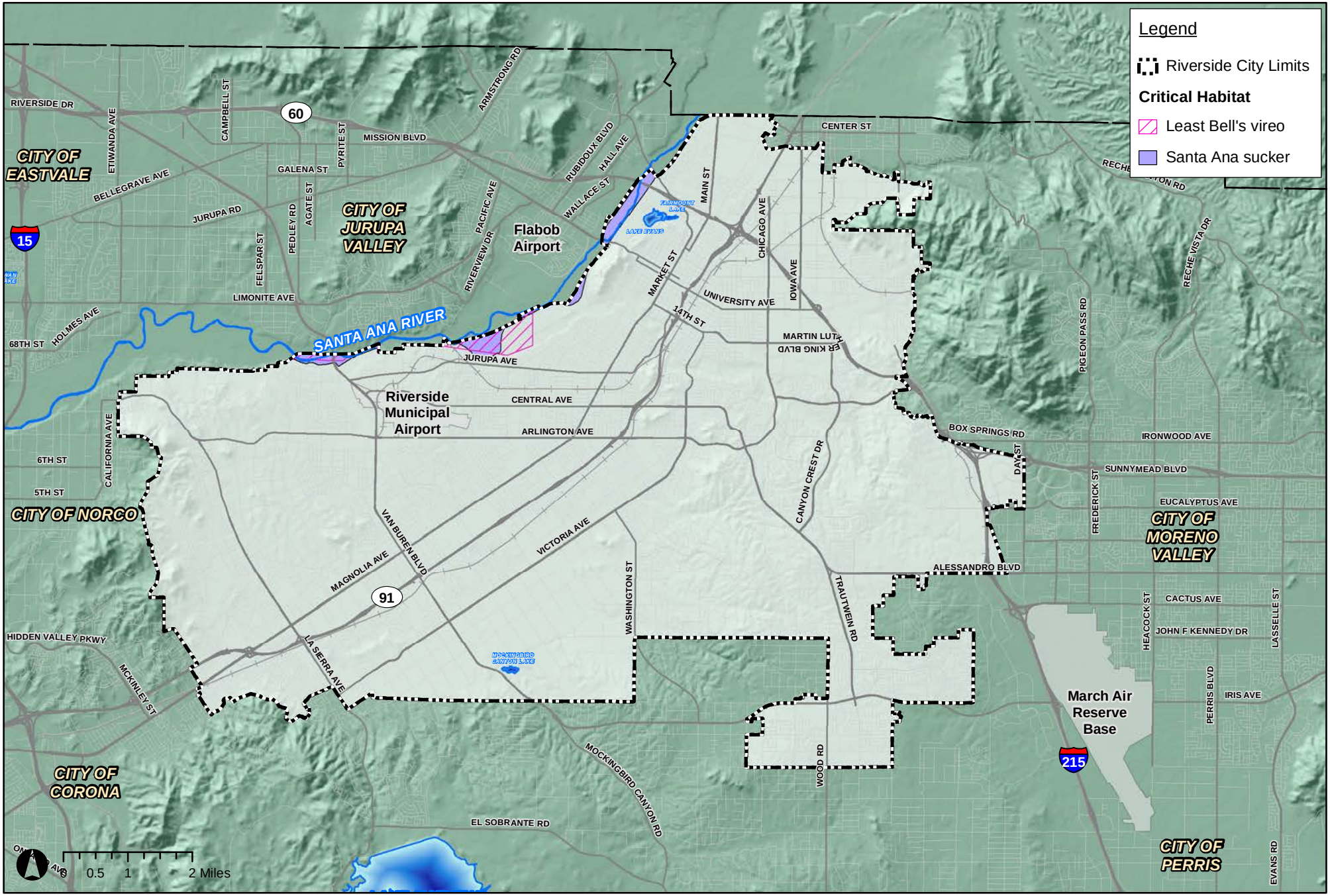
Habitat Connectivity and Wildlife Movement Corridors

Wildlife corridors are defined as habitat linkages that connect suitable wildlife habitat areas in a region otherwise fragmented by development, disturbance, rugged terrain, or changes in vegetation. Many wildlife species require large areas of habitat to forage, find burrowing/denning or nesting sites, and for breeding. Corridors linking areas of suitable habitat are important because they provide access to mates, food, and water; they allow the dispersal of individuals away from high population density areas; and they facilitate the exchange of genetic traits between populations (Beier and Loe 1992). Corridors are often used by juveniles dispersing to new territories, which avoids intraspecies competition in existing habitats and allows the recolonization of areas from which animals have become extirpated. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors for wildlife movement, as do engineered structures such as culverts and flood control channels.

One Essential Connectivity Area (ECA) identified by the California Essential Habitat Connectivity Project (CEHC) occurs partly within the City (Spencer et al. 2010). The Badlands West – Box Springs Mountains ECA occurs along the northeastern border of the City and connects the Box Springs Mountains in the west to the Badlands Mountains in the east.

Although not officially designated as a corridor under the CEHC, the Santa Ana River and its tributaries function as corridors for both terrestrial and aquatic wildlife within the City and surrounding region. The Santa Ana River is one of the largest functioning riparian systems in Southern California. Development within the Santa Ana River valley has greatly reduced the amount of wildlife habitat in the region, but the Santa Ana River has remained relatively open and passable. Within the City, the Santa Ana River and its tributaries serve as a wildlife movement corridor that provides year-round water, cover, foraging and breeding areas, and connections to open space in the surrounding region. They provide a linkage between the San Bernardino Mountains and all open space between there and the Pacific Ocean, which is important for fish species (e.g., Santa Ana sucker, arroyo chub [*Gila orcuttii*]), semi-aquatic species (e.g., California glossy snake [*Arizona elegans occidentalis*], coast range newt [*Taricha torosa torosa*], south coast garter snake [*Thamnophis elegans terrestris*]), and terrestrial wildlife species (e.g., neo-tropical migratory birds, waterfowl, coyote [*Canis latrans*], Virginia opossum, raccoon, striped skunk).

Figure 3.2-2
Critical Habitat within the City



The City's canyons and southern hillsides also provide valuable migratory corridors for wildlife. These migratory corridors are connected where two drainages pass near each other or at the confluence of different drainage or canyons.

Additionally, although they may not provide foraging or breeding habitat, other water infrastructure such as flood control channels, culverts, and bridges also provide connection points for terrestrial wildlife between urban areas and native habitats along the Santa Ana River and its tributaries, facilitating wildlife movement between urban and natural, open space areas.

3.2.3 Regulatory Setting

This section identifies laws, regulations, and ordinances that are relevant to the impact analysis of biological resources in this EIR.

Federal

Federal Endangered Species Act of 1973

Administered by USFWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS), FESA provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Pursuant to FESA (7 United States Code [USC] 136, 16 USC 1531 et seq.), USFWS and NMFS have regulatory authority over species listed as endangered or threatened as well as habitat of such species that has been designated as critical (i.e., critical habitat). Under FESA, authorization is required to "take" a listed species or adversely modify critical habitat. *Take* is defined under FESA Section 3 as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Under federal regulation (50 CFR 17.3, 222.102), *harm* is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Designated critical habitat for endangered and threatened species is defined as a specific geographic area that is essential for species recovery and conservation of a threatened or endangered species and that may require special management and protection. Critical habitat is designated when a species is listed pursuant to FESA. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery.

Specifically, Sections 7 and 10(a) of FESA regulate actions that could jeopardize endangered or threatened species. FESA Section 7 outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat. Section 7(a)(2) and its implementing regulations require federal agencies to consult with USFWS and/or NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of critical habitat. Critical habitat designations are not made for every species listed under FESA. The designation process also considers economic, national security, and other impacts and may result in the exclusion of some habitat areas from critical habitat designation (16 USC 1533(b)(2)). Military installations are generally excluded from critical habitat designations; however, they are required by the Sikes Act (16 USC 670a–670f, as amended) to prepare integrated natural resource management plans.

For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek to obtain an Incidental Take Permit (ITP) under FESA Section 10(a), which allows issuance of permits for incidental take of endangered or threatened species. The term *incidental* applies if the taking of a listed species is incidental to and not the purpose of an otherwise lawful activity. An HCP demonstrating how the taking would be minimized and what steps taken would ensure the species' survival must be submitted for issuance of Section 10(a) permits.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) domestically implements a series of international treaties that provide for migratory bird protection (16 USC 703 et seq.). The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it is unlawful, except as permitted by regulations, "to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, […] any migratory bird, or any part, nest, or egg of any such bird" (16 USC 703(a)). Species protected under the MBTA are listed in 50 CFR 10.13. Most native birds in the City are protected under the MBTA. USFWS issues permits under the MBTA to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, educational, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. USFWS does not issue permits for *incidental take* of migratory birds that results from otherwise lawful activities such as infrastructure, transportation projects, facility structures, or other activities.

Protection of Migratory Bird Populations (Executive Order 13186)

Executive Order (EO) 13186 (*Federal Register,* Volume 66, Number 11 [January 17, 2001], p. 4) requires federal agencies to develop a comprehensive strategy for the conservation of migratory birds by the federal government, thereby fulfilling the government's duty to lead in the protection of this international resource. Each federal agency is required to enter into a Memorandum of Understanding with USFWS outlining how the agency will promote conservation of migratory birds. The EO also requires federal agencies to incorporate migratory bird conservation measures into their agency activities. The EO does not affect federal-aid projects because actions delegated to or assumed by nonfederal entities, or carried out by nonfederal entities with federal assistance, are not subject to the EO, although such actions continue to be subject to the MBTA itself.

Invasive Species (Executive Order 13112)

EO 13112 requires federal agencies to "prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health effects that invasive species cause." An invasive species is defined by the EO as "an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health." Alien species are defined, with respect to a particular ecosystem, as any species (including its seeds, eggs, spores, or other biological material capable of propagating that species) that is not native to that ecosystem.

Clean Water Act

The principal law that serves to protect the nation's waters is the 1948 Federal Water Pollution Control Act. This legislation, more commonly referred to as the Clean Water Act (CWA), underwent significant revision when Congress, in response to the public's growing concern of widespread water pollution, passed the Federal Water Pollution Control Act Amendments of 1972. The purpose

of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. for the conservation of the nation's potable water sources. Under the current regulatory definition, waters of the U.S. include navigable waters of the U.S., territorial seas, interstate waters, all other intermittent and perennial waters and adjacent wetlands (with some exceptions) where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries (33 CFR 328.3(a)).

On January 23, 2020, the U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE) signed and released the prepublication notice of the Navigable Waters Protection Rule, redefining waters of the U.S. (33 CFR 328). The Navigable Waters Protection Rule and revised definition of waters of the U.S. went into effect on June 23, 2020. The Navigable Waters Protection Rule outlines four clear categories of waters that are considered waters of the U.S.:

- Territorial seas and traditional navigable waters (TNWs)
- Tributaries to TNWs that are perennial or intermittent
- Lakes, ponds, and impoundments of jurisdictional waters
- Adjacent wetlands

The Navigable Waters Protection Rule also identified those waters that are not considered waters of the U.S., which include, but are not limited to, groundwater, ephemeral features, diffuse stormwater and directional sheet flow over upland areas, ditches, artificially irrigated areas, and stormwater features excavated in uplands.

Any Project-related impacts on USACE and/or Regional Water Quality Control Board (RWQCB) jurisdictional aquatic resources would require a CWA Section 404 Nationwide Permit and a CWA Section 401 Water Quality Certification, respectively.

Clean Water Act, Section 401

Section 401 of the CWA requires a water quality certification or waiver thereof before any federal permit can be issued "to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge." Therefore, projects requiring authorization by USACE pursuant to Section 404 or Section 408 of the CWA and/or Section 10 of the Rivers and Harbors Act may need to obtain water quality certification. The State Water Resources Control Board (SWRCB), RWQCB, and EPA are responsible for issuing Section 401 Water Quality Certifications.

Clean Water Act, Section 402, National Pollutant Discharge Elimination System Program

Under the CWA, EPA has implemented pollution control programs and has developed national water quality criteria recommendations for pollutants in surface waters. The CWA made it unlawful to discharge any pollutant from a point source into navigable waters unless a permit was obtained. EPA's National Pollutant Discharge Elimination System (NPDES) program controls discharges. Point sources are discrete conveyances such as pipes or human-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain NPDES permits if their discharges go directly to surface waters.

Clean Water Act, Section 404

Section 404 of the CWA (33 USC 401 et seq.; 33 USC 1344; USC 1413; and Department of Defense, Department of the Army, USACE 33 CFR Part 323), as implemented by USACE, requires authorization by USACE for the discharge of dredged and/or fill material into waters of the U.S. (as defined at 33 CFR 328.3(a)). *Dredged material* means material that is excavated or dredged from waters of the U.S. *Fill material* means material placed in waters of the U.S. where the material has the effect of replacing any portion of a waters of the U.S. with dry land or changing the bottom elevation of waters of the U.S. Examples of fill material include rock, sand, soil, clay, plastics, woodchips, concrete, and materials used to create any structure or infrastructure in waters of the U.S.

Protection of Wetlands (Executive Order 11990)

Pursuant to EO 11990, each federal agency is responsible for preparing implementing procedures for carrying out the provisions of the EO. The purpose of this EO is to "minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands." If triggered by a federal permit, a federal agency, to the extent permitted by law, must avoid undertaking or providing assistance for any activity in wetlands, unless the head of the agency finds that there is no practical alternative to such activity, and the proposed action includes all practical measures to minimize harm to wetlands that may result from such actions. In making this finding, the head of the agency may take into account economic, environmental, and other pertinent factors. Each agency must also provide opportunity for early public review of any plans or proposals for new construction in wetlands.

State

California Endangered Species Act

CESA provides a process by which plants and animals can be recognized as being endangered or threatened with extinction. Pursuant to CESA, a permit from CDFW is required for projects that could result in the taking of a plant or animal species that is state-listed as threatened or endangered (CFGC Section 2050 et seq.). Under CESA, *take* means to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (CFGC Section 86). The CESA definition of take does not include "harm" or "harass," as the FESA definition does. As a result, the threshold for take is higher under CESA than under FESA. Authorization for take of state-listed species may be obtained through a CFGC Section 2080.1 consistency determination (for applicants who have already obtained a federal incidental take statement or permit for the same species) or a Section 2081 ITP.

Natural Community Conservation Planning Act

California's Natural Community Conservation Planning (NCCP) program is a cooperative effort to protect habitats and species that began under the state's NCCP Act of 1991. The FESA Section 4(d) special rule for interim take of coastal California gnatcatchers was promulgated in response to the NCCP Act of 1991 and the initiation of NCCPs targeting coastal sage scrub (gnatcatcher habitat). The NCCP Act authorized the state to engage in regional multiple species conservation planning with local jurisdictions and property owners.

The NCCP Act and the associated Southern California Coastal Sage Scrub NCCP Process Guidelines (1993), Southern California Coastal Sage Scrub NCCP Conservation Guidelines (1993), and NCCP

General Process Guidelines (1998) have been superseded by the NCCP Act of 2003. The NCCP Act of 2003 provides for the preparation and approval of NCCPs. NCCPs identify and provide for the regional or area-wide protection of plants and animals, including their habitats, and are intended to preserve local and regional biological diversity, reconcile urban development and wildlife needs, conserve state-listed species to the point where they can be delisted, and maintain or enhance conditions for covered species such that listing will not become necessary (CFGC Section 2800 et seq.). The NCCP Act was amended again in 2011 to allow CDFW to authorize incidental take of "fully protected" species if they are "covered species" under an approved NCCP.

Lake or Streambed Alteration (California Fish and Game Code Section 1602)

The CDFW regulates alterations or impacts on streambeds or lakes under Section 1602 of the CFGC. Substantial diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under CFGC Section 1602. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do either of the following without first submitting a complete Notification of Lake or Streambed Alteration to CDFW and obtaining a Lake and Streambed Alteration Agreement:

- Substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake

The California Fish and Game Commission defines *stream* as a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

Protection of Birds, Nests, and Raptors (California Fish and Game Code Sections 3503 and 3503.5)

CFGC Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. CFGC Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of CFGC Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby Project construction. These code sections do not provide for the issuance of any type of ITP.

Fully Protected Species under the California Fish and Game Code (Sections 3511, 4700, 5050, and 5515)

California designated species as "fully protected" prior to the creation of CESA and FESA. Lists of fully protected species were initially developed to provide protection to species that were rare or facing possible extinction/extirpation. These statutes prohibit take or possession of fully protected species. Most fully protected species have since been state-listed as threatened or endangered

species. Protection of fully protected species is described in CFGC Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish).

In September 2011, the NCCP Act was amended to permit the incidental take of 36 fully protected species, pursuant to the NCCP Act approved by CDFW (CFGC Section 2835). The amendment gives fully protected species the same level of protection as endangered and threatened species under the NCCP Act. The NCCP Act authorizes the incidental take of species "whose conservation and management" is provided for in a conservation plan approved by CDFW.

California Native Plant Protection Act

The Native Plant Protection Act of 1977 (CFGC Section 1900 et seq.) directed CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take.

Porter-Cologne Water Quality Control Act (California Water Code Section 13000 et seq.)

The SWRCB and RWQCBs, as appropriate, have the responsibility to implement and enforce the Porter-Cologne Water Quality Control Act (Porter-Cologne), which regulates waste discharge into waters of the State. In Porter-Cologne, the legislature declared that the "state must be prepared to exercise its full power and jurisdiction to protect the quality of waters of the State from degradation" (California Water Code Section 13000). Porter-Cologne grants the RWQCBs the authority to implement and enforce the water quality laws, regulations, policies, and plans to protect the groundwater and surface waters of the State. The RWQCBs regulate the "discharge of waste" to waters of the State. The term *discharge of waste* is also broadly defined in Porter-Cologne, such that discharges of waste include fill, any material resulting from human activity, or any other "discharge" that may result in direct or indirect impacts on waters of the State relative to implementation of Section 401 of the CWA.

Specifically, Porter-Cologne requires each RWQCB to formulate and adopt water quality plans for all areas within their region (also referred to as "Basin Plans"). Basin Plans establish beneficial uses, water quality standards, and water quality objectives for major watershed areas (i.e., RWQCB boundaries) throughout the state. Under Porter-Cologne, all parties proposing to discharge waste that could affect the quality of waters of the State, other than into a community sewer system, are required to file with the appropriate RWQCB a Report of Waste Discharge containing such information and data as may be required by the RWQCB. The RWQCB will then respond to the Report of Waste Discharge by issuing a waste discharge requirement (WDR) in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge. The RWQCB has a statutory obligation to prescribe WDRs except where the RWQCB finds that a waiver of WDRs for a specific type of discharge is in the public interest. Therefore, all parties proposing to discharge waste that could affect waters of the State, but do not affect federal waters (which requires a CWA Section 404 permit and CWA Section 401 Certification), must file a Report of Waste Discharge with the appropriate RWQCB.

The RWQCB collaborates with other agencies on the enforcement of the act, such as CDFW and USACE. Although 401 certification is typically issued by RWQCB staff, WDRs must be issued by the RWQCB. Generally, when staff issue or waive 401 certification, WDRs are simultaneously waived.

However, for large or multiyear projects that are being reviewed under Section 401 of the CWA, staff may determine that WDRs should also be issued, whereby additional review by the RWQCB and a public hearing would be necessary.

Any Project-related impacts on RWQCB jurisdictional aquatic resources may require a Waste Discharge Permit under Porter-Cologne when there is no federal CWA jurisdiction.

Regional

Western Riverside County Multiple Species Habitat Conservation Plan

The WRC MSHCP, a comprehensive regional HCP, was adopted in June 2003. Major participants in the regional planning effort included but were not limited to, the California Department of Transportation, CDFW, USFWS, the County of Riverside, Riverside County Transportation Commission, 18 cities, and interested individuals and groups. The purpose of the plan was to develop methods and procedures that provide for development while protecting environmental resources in the western Riverside County area over a 75-year period (RCA 2003). The County of Riverside signed the Implementation Agreement on December 15, 2003. The City is a participating jurisdiction in the WRC MSHCP.

The WRC MSHCP, among other things, provides impact mitigation for future covered activities by the permittees of the WRC MSHCP within western Riverside County. Participation by the Permittees of the WRC MSHCP is intended to streamline the environmental review process for future covered activities in western Riverside County (e.g., through pre-mitigation).

A consistency review by the RCA, USFWS, and CDFW would be performed for each individual development project to ensure that each project is consistent with the requirements of the plan. Because there is a federal nexus for the project, formal consultation for each individual development project would occur through the consistency review performed by USFWS and would result in a streamlined biological opinion from USFWS (if required).

The entire City occurs within the boundaries of the WRC MSHCP (Figure 3.2-1) and contains numerous WRC MSHCP–designated conservation areas, including Habitat Management Units, Area Plans and Subunits, and Cores and Linkages (Table 3.2-4). The WRC MSHCP also overlaps with Public/Quasi-Public (PQP) conserved lands, consisting of 168 PQP Object IDs and 13 Criteria Cells throughout the City.

Table 3.2-4. WRC MSHCP Conservation Areas within the City

WRC MSHCP Conservation Area Type	WRC MSHCP Conservation Areas Occurring within the City
Habitat Management Units	River, San Timoteo, Gavilan, San Jacinto
Area Plans and Subunits	Cities of Riverside and Norco Area Plan: Subunit 1 Santa Ana River South, Subunit 2 Sycamore Canyon/Box Springs West Highgrove Area Plan: Subunit 1 Sycamore Canyon/Box Springs Central, Subunit 2 Springbrook Wash North Jurupa Area Plan: Subunit 1 Santa Ana River North
Cores and Linkages	CL-7, Core-A, Core-D, NCH-A

Portions of the City also occur within the following WRC MSHCP survey areas:

- Narrow Endemic survey area 7
- Criteria Area species survey area 6
- Burrowing Owl survey area
- Mammal survey area 3

Although survey areas for least Bell's vireo, southwestern willow flycatcher (*Empidonax traillii extimus*), and western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) are not provided by the WRC MSHCP, if potential habitat is present and potential direct and/or indirect effects could occur, focused surveys are required (WRC MSHCP Volume I, Section 6.1.2). A full review of potential riparian-riverine and vernal pool resources is also required by the WRC MSHCP.

Wildlife crossing design considerations and guidelines specified in WRC MSHCP Section 7.5.2, *Guidelines for Construction of Wildlife Crossings*, specify the general approach to analyzing regional connectivity and the number and frequency, design guidelines and standards, and species-specific considerations for wildlife crossings.

The WRC MSHCP requires covered activities under the plan to fulfill the requirements presented in WRC MSHCP Volume I, Sections 6.1.2, 6.1.3, 6.1.4, 6.3.2, 7.5.1, and 7.5.3, and follow the best management practices (BMPs) in Appendix C of the WRC MSHCP.

Stephen's Kangaroo Rat Habitat Conservation Plan

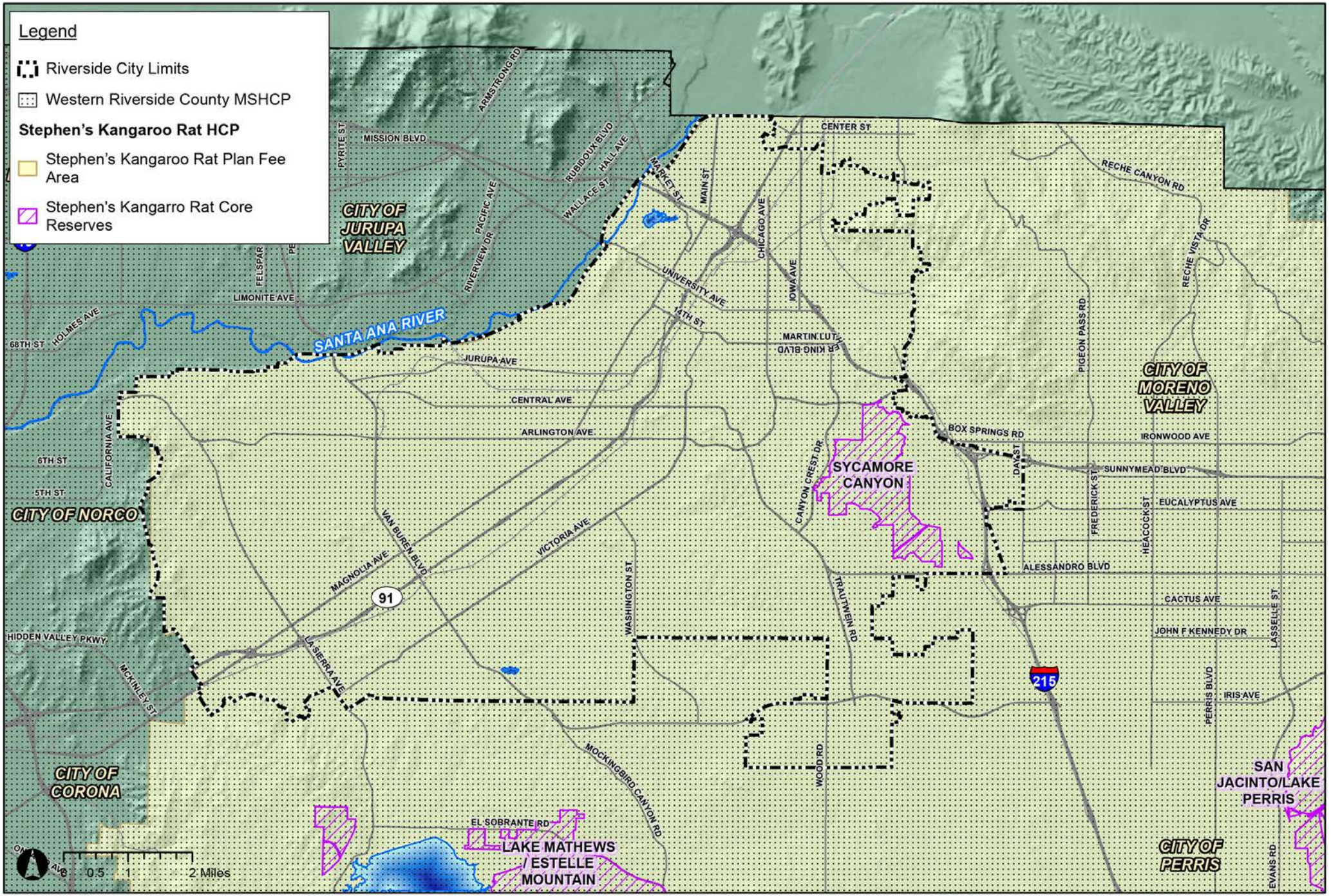
The Riverside County Habitat Conservation Agency (RCHCA) sought and obtained ITPs from USFWS and CDFW for Stephens' kangaroo rat (*Dipodomys stephensi*) within the Stephens' Kangaroo Rat Habitat Conservation Plan (SKR HCP) area. The purpose of the SKR HCP was to streamline the permitting process for otherwise lawful activities resulting in the incidental take of Stephens' kangaroo rat while also meeting FESA and CESA requirements without seeking individual permits and agreements with USFWS and CDFW. Conservation goals for Stephens' kangaroo rat were incorporated into the SKR HCP to ensure full mitigation for all Stephens' kangaroo rat occupied habitat that would be incidentally taken (RCHCA 1996).

One of these goals included the acquisition and conservation of Stephens' kangaroo rat habitat within a regional reserve system. The SKR HCP provides take authorization for Stephens' kangaroo rat within its boundaries through the establishment of core reserves. The SKR HCP establishes conservation of 15,000 acres in core reserves within the plan's boundary for SKR. The loss of habitat and individuals under this HCP are offset by the establishment of a "core reserve" system consisting of seven reserves managed to maintain the long-term survival of the species. The City encompasses 1,380 acres of SKR HCP Core Reserve Area of Sycamore Canyon Core Reserve, as shown on Figure 3.2-3.

Riverside County Ordinance No. 663.10 was established to implement the mitigation provisions of the SKR HCP, which includes a mitigation fee for new development in western Riverside County. The entire City occurs within the SKR HCP Fee Area, with the exception of a few small areas along the northern and western edge of the City (Figure 3.2-3).

Figure 3.2-3

Habitat Conservation Plans within the City



Local

City of Riverside Urban Forest Tree Policy

The City of Riverside is known as a "City of Trees." The City's *Urban Forest Tree Policy Manual* provides guidelines for the preservation and protection of the City's tree heritage, with a particular focus on trees that occur within City rights-of-way.

Riverside General Plan 2025

Open Space and Conservation Element

The Open Space and Conservation Element addresses the preservation and protection of the City's natural resources. The element includes objectives and policies crafted to protect the City's open space areas, hillsides, and scenic resources in a manner which would enhance the living environment of all residents.

Land Use and Urban Design Element

In compliance with California Government Code Section 65302(a) requirements, the Land Use and Urban Design Element includes existing and proposed land uses as well as their relationship to the City's visionary goals. The element incorporates objectives and policies for land development and usage. The Land Use and Urban Design Element policies relevant to the Project are addressed in Section 3.7, *Land Use and Planning*.

Table 3.2-5 presents an overview of GP 2025 and other local plans, policies, and programs related to biological resources.

Table 3.2-5. Relevant Riverside General Plan and Specific Plan Policies

Plan	Policy
Riverside General Plan 2025	
Open Space and Conservation Element	Policy OS-1.1. Protect and preserve open space and natural habitat wherever possible. Policy OS-1.2. Establish an open space acquisition program that identifies acquisition area priorities based on capital costs, operation and maintenance costs, accessibility, needs, resource preservation, ability to complete or enhance the existing open space linkage system and unique environmental features. Policy OS-1.3. Work with Riverside County and adjacent cities, landowners and conservation organizations to preserve, protect and enhance open space and natural resources. Policy OS-1.4. Support efforts of State and Federal agencies and private conservation organization to acquire properties for open space and conservation uses. Support efforts of nonprofit preservation groups, such as the Riverside Land Conservancy, to acquire properties for open space and conservation purposes. Policy OS-1.5. Require the provision of open space linkages between development projects, consistent with the provisions of the Trails Master Plan, Open Space Plan and other environmental considerations including the MSHCP.

Plan	Policy
	Policy OS-1.8. Encourage residential clustering as means of preserving open space.
	Policy OS-1.9. Promote open space and recreation resources as a key reason to live in Riverside.
	Policy OS-1.10. Utilize a combination of regulatory and acquisition approaches in the City's strategy for open space preservation.
	Policy OS-1.11. Develop a program for City acquisition of identified open space land and encourage land donations or the dedication of land in lieu of park fees for the acquisition of usable land for public parks, open space and trail linkages.
	Policy OS-1.12. Ensure that areas acquired as part of the Open Space System are developed, operated and maintained to provide the City with a permanent, publicly accessible open space system.
	Policy OS-1.13. Design Capital Improvement Program projects, which affect identified open space areas to support these areas' value as open space.
	Policy OS-1.14. Establish an on-going needs assessment program to solicit feedback for users to identify changing needs and standards for the Open Space System.
	Policy OS-1.15. Recognize the value of major institutional passive open spaces, particularly cemeteries, as important components of the total open space systems and protect their visual character.
	Policy OS-2.2. Limit the extent and intensity of uses and development in areas of unstable terrain, steep terrain, scenic vistas, arroyos, and other critical environmental areas.
	Policy OS-2.4. Recognize the value of ridgelines, hillsides, and arroyos as significant natural and visual resources and strengthen their role as features, which define the character of the City and its individual neighborhoods.
	Policy OS-4.2. Establish buffers and/or open space between agricultural and urban uses so that the potential impacts from urban development will be mitigated.
	Policy OS-4.3. Explore the possibility of establishing a fee for all new development in Riverside for land banking to create new buffers and/or purchase sensitive lands between urban development and existing open space resources.
	Policy OS-5.1. Preserve significant habitat and environmentally sensitive areas, including hillsides, rock outcroppings, creeks, streams, viewsheds, and arroyos through application of the RC Zone standards and the Hillside/Arroyo standards of the City's Grading Code.
	Policy OS-5.2. Continue to participate in the MSHCP Program and ensure all projects comply with applicable requirements.
	Policy OS-5.3. Continue to participate in the Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan including collection of mitigation fees.
	Policy OS-5.4. Protect native plant communities in the General Plan area, including sage scrub, riparian areas, and vernal pools, consistent with the MSHCP.
	Policy OS-6.1. Protect and enhance known wildlife migratory corridors and create new corridors as feasible.
	Policy OS-6.2. Support regional and local efforts to acquire, develop, and maintain open space linkages.

Plan	Policy
	Policy OS-6.3. Preserve the integrity of the arroyos of Riverside and riparian habitat areas through the preservation of native plants.
	Policy OS-6.4. Continue with efforts to establish a wildlife movement corridor between Sycamore Canyon Wilderness Park and the Box Springs Mountain Regional Park as shown on the MSHCP. New developments in this area shall be conditioned to provide for the corridor and Caltrans shall be encouraged to provide an underpass at the 60/215 Freeway.
	Policy OS-7.3. Preserve and expand open space along the Santa Ana River to protect water quality, riparian habit, and recreational uses.
Land Use and Urban Design Element	Policy LU-2.2. Utilize the 2004 Santa Ana River Task Force Report in planning, programming, and implementing environmental and recreational improvements to the River area.
	Policy LU-3.1. Pursue methods to preserve hillside open space and natural habitat.
	Policy LU-3.2. Seek annexation of properties that will reduce ridgeline/hillside development on the City's periphery.
	Policy LU-4.1. Adhere to the protections for hillside development set forth in Proposition R and Measure C.
	Policy LU-5.1. Minimize public and private development in and in close proximity to any of the City's arroyos.
	Policy LU-5.2. Recognize the City's arroyos as components of Riverside Park.
	Policy LU-5.3. Encourage that any crossings of the City's major arroyos are span bridges or soft bottom arch culverts that minimize disturbance of the ground and any wetland area. At-grade crossings are strongly discouraged in major arroyos. To minimize disturbance of the arroyo the design will take into consideration aesthetics, biological, hydrological and permitting (i.e., MSHCP, ACOE, DFG, etc.) requirements to promote the free movement of water and wildlife. In addition, areas of the arroyo disturbed by construction will be restored consistent with requirements of the MSHCP, as well as the ACOE's 404 Permit Program and DFG's Streambed Alteration Agreement Program as applicable.
	Policy LU-5.4. Continue to require open space easements in conjunction with new development to be recorded over arroyo areas, per the City's Grading Code.
	Policy LU-5.5. Work with Riverside County to develop, implement and maintain comprehensive management plans for protection of entire arroyo systems.
	Policy LU-7.1. Continue to maintain Sycamore Canyon Wilderness Park as primarily a functioning wildlife habitat.
	Policy LU-7.2. Design new development adjacent and in close proximity to native wildlife in a manner which protects and preserves habitat.
	Policy LU-7.3. Continue to require natural open space easements in conjunction with new development in hillside and arroyo areas over non-graded areas of the development.
	Policy LU-7.4. Continue to participate in the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).

Plan	Policy
Specific Plans	
Canyon Springs Business Park Specific Plan	There are no applicable policies relevant to the Project regarding biological resources.
Downtown Specific Plan	Chapter 12 Market Street Gateway District, Section 12.6 Design Standards and Guidelines for the Market Street Gateway District, 12.6.4 Landscaping, Plant Types: (1) Throughout this corridor, plants should be selected that reflect a parklike quality. The plant mix should include significant use of native trees, such as Western Sycamores, Coast Live Oaks, and Cottonwoods.
Hunter Business Park Specific Plan	There are no applicable policies relevant to the Project regarding biological resources.
La Sierra University Specific Plan	Policy LSU-5.4: The tops of natural hill forms shall be developed as landscaped open spaces.
Magnolia Avenue Specific Plan	*Corridor Wide Objectives and Policies* Objective 1: Restore the Magnolia/Market Corridor to its historical role as a scenic, "showcase roadway" that spans the City of Riverside while updating its function as a key transit corridor to support future growth. (General Plan Objective LU-12) Policy 1.2: Maintain the existing mature heritage landscaping and infill landscaping as appropriate to return the Corridor to being a grand tree-lined parkway. (General Plan Policy LU-12.2) *Magnolia Heritage District Objective and Policies* Objective 1: Maintain the established residential character of the magnolia heritage District while allowing for higher intensity transit oriented residential and mixed-use development on opportunity sites, particularly along Magnolia and California avenues. (General Plan Objective LU-78) Policy 1.2: Preserve historic landscaping and increase green space along the Magnolia corridor. (General Plan Policy LU-78.2) *Wood Streets District Objective and Policies* Objective 1: Maintain and enhance the single-family residential character of Wood Streets and preserve the historic housing stock. (General Plan Objective LU-86) Policy 1.2: Implement strong tree preservation policies within the Wood Streets District. (General Plan Policy LU-86.2)
Riverside Marketplace Specific Plan	There are no applicable policies relevant to the Project regarding biological resources.
University Avenue Specific Plan	*Section 5.2. Streetscape Standards for University Avenue:* To protect the existing palm corridor and the mature trees near Bobby Bonds Park and still provide improved traffic service, University Avenue shall be maintained as a four-lane street widened at major intersections (Chicago, Iowa, and Kansas Avenues) for additional turn lanes and for bus bays. To accommodate a bike lane the entire length of University Avenue, the area between Kansas and Chicago Avenue may need to be widened by 10 feet. This widening should be engineered so as to avoid the existing mature trees adjacent to Bobby Bonds Park.

Plan	Policy
	New palms shall be added to reinforce the existing palm corridor and provide the major unifying element for the street.
	Section 5.2.1. From Park Avenue to just west of Chicago Avenue (Subdistrict 1)
	Maintain existing mature trees and introduce new palms to continue the "palm corridor" and new canopy shade trees.
	Section 5.3.1. Existing and New Street Trees in Parkways
	Existing mature trees in the public right-of-way should be retained, if possible.
	Section 8.3.2 Preservation of Existing Site Features
	Existing site conditions, such as mature trees, natural drainage courses and historic structures shall be incorporated into a project on any site.

Sources: City of Riverside 1991, 2002, 2005, 2007b, 2009, 2012, 2017a, 2017b, 2019.

Policy Consistency

The Project would be consistent with the City's policies relating to biological resources in the Open Space and Conservation Element, and Land Use and Urban Design Element (City of Riverside 2012, 2019) because the Project would comply with all relevant state and federal laws, as well as the WRC MSHCP and SKR HCP, relating to preservation of biological resources.

3.2.4 Methodology and Thresholds of Significance

Methodology

The study area for the Project consists of the City's boundaries. The methods for analysis are based on review of the WRC MSHCP, Volumes I & II (RCA 2003) and the GP 2025 EIR (City of Riverside 2007a), as well as a literature and records search to identify biological resources that may be present within the City. The following databases/resources were reviewed.

- CNDDB (CDFW 2021a) element occurrences for the quadrangle maps of the City
- The CDFW Special Animals List (CDFW 2021b)
- CNPS Online Inventory of Rare and Endangered Plants, eighth edition (CNPS 2021), for the quadrangle maps of the City
- USFWS Information for Planning and Consultation resource list (USFWS 2021a)
- USFWS Critical Habitat for Threatened and Endangered Species online mapper (USFWS 2021b)
- CDFW Biogeographic Information and Observation System Habitat Connectivity Viewer (CDFW 2021c)
- CDFW California Sensitive Natural Communities (CDFW 2021d)
- CDFW NCCP/HCP mapper (CDFW 2021e)
- National Wetlands Inventory (NWI) Wetlands Mapper database (USFWS 2021c)
- National Hydrography Dataset (USGS 2021)
- USGS topographic quadrangle maps of the City (USGS 1967)

- U.S. Department of Agriculture, Natural Resources Conservation Service Soil Survey maps (USDA-NRCS 2021)
- WRC MSHCP Summary Report Generator (RCA 2021)
- RCA Western Riverside Vegetation Map (RCA 2012)
- Google Earth aerial imagery (Google Earth 2021)

The potential for lands within the City to support special-status plant and animal species was assessed via desktop analysis to identify possible Project impacts on those species. Vegetation communities, land cover types, water bodies, soils, topography, elevation, and records of occurrence within the City were considered when determining potentially suitable habitat to support special-status species and the potential of individual special-status species to occur. Resources reviewed included RCA Western Riverside vegetation mapping, Google Earth aerials and photos, records of occurrence (e.g., CNDDB, Calflora), Natural Resources Conservation Service soil mapping, and USGS topographic maps.

Implementation of the Project could result in direct, indirect, and cumulative impacts on biological resources. *Direct impacts* are those effects of a project that occur at the same time and place as project implementation, such as removal of habitat through ground disturbance. *Indirect impacts* are those effects that occur later in time and/or at a distance from project activities, but are reasonably foreseeable, such as downstream loss of aquatic species from effects on water quality. Direct and indirect impacts can be permanent or temporary and may result from various project activities, including construction of new development that may involve grading, excavation, trenching, and placement of fill material; increase in impervious surfaces; removal of vegetation during construction and temporary staging areas; and temporary disturbance associated with operation and maintenance of public facilities (e.g., vegetation management). *Cumulative impacts* are those incremental effects of a project that, even if less than significant themselves, could in combination with the effects of other projects significantly affect biological resources.

Direct impacts for construction and operations were evaluated based on the current and future potential for special-status species, sensitive natural communities, wetlands and/or potentially jurisdictional aquatic resources, and wildlife corridors and linkages to be present based on the evaluation of biological resources available within the City. Indirect impacts from the Project were evaluated based on the potential presence of suitable habitat for special-status species, sensitive natural communities, wetlands and/or potentially jurisdictional aquatic resources, and wildlife corridors and linkages in the vicinity or region of the Project.

Impacts from implementation of the Project on natural communities were evaluated quantitatively. The analysis involved overlaying geographic information system (GIS) layers for areas of potential development or fire control activities onto the GIS layers for land cover mapping developed for the Project in order to determine the amount of each type of land cover that would be affected. Land cover mapping used for the Project was based on the RCA Western Riverside Vegetation Map (RCA 2012).

Impacts on special-status species, wildlife migration corridors, and other HCPs occurring within the City were assessed through a high-level, qualitative analysis and are not a final Project-level determination. Each individual project would need to undergo site-specific desktop and/or field

reviews and analyses to conclusively determine if suitable habitat is present or absent for special-status species, wildlife migration corridors, and other HCPs occurring within the City.

The evaluation of impacts on species potentially occurring within the City relied on a combination of the available natural community and land cover mapping, as well as species occurrence information (compiled from CNDDB and CNPS data). Because the scope and scale of the Project did not include performing field surveys, including detailed vegetation mapping and special-status species surveys, and analysis was instead based on overlaying GIS layers of existing data, determinations of species' potential to occur within the City are very broad and high level. A more detailed assessment of species potential to occur within the City for discrete development under the Project would be performed on a project-by-project basis, as necessary.

The analysis for impacts on wildlife movement corridors and other HCPs involved overlaying GIS layers for Project elements (i.e., Opportunity Sites involving residential and mixed-use development, fire hazard areas) onto the GIS layers for wildlife corridors and other HCP conservation areas and plan boundaries in order to determine the areas that would be affected. The potential effects on migration corridors in the City were evaluated qualitatively using map data from the CEHC (Spencer et al. 2010). This information was used to determine if build-out of any of the Housing Element Update Opportunity Sites would result in barriers across natural lands that serve as known or potential wildlife corridors. The CEHC identified natural blocks of habitat across California and areas that potentially provide linkages and ECAs between these blocks. ECAs are defined as lands likely to be important to wildlife movement between large, mostly natural areas at the statewide level. The ECAs form a functional network of wildlands that are considered important to the continued support of California's diverse natural communities. Map data for potential impacts on other HCPs was obtained from the WRC MSHCP (RCA 2021) and SKR HCP (County of Riverside 2016).

The assessment of impacts on potentially jurisdictional wetlands and other waters relied on a desktop analysis using aerial imagery, NWI data (USFWS 2021c), and National Hydrography Dataset data within the City. Independent jurisdictional delineations would be performed on a Project-specific level to determine potentially jurisdictional wetlands, other waters, and CDFW streambed and riparian habitat during the independent development review process for each individual development, as necessary.

Thresholds of Significance

An Initial Study was prepared for the Project in April 2021. The following environmental threshold was scoped out from detailed review in this section of the Draft EIR in the Initial Study because the impact was determined to be less than significant:

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

For a complete discussion of the environmental issues that were scoped out from this Draft EIR, refer to Section 3.15, *Effects Not Found to Be Significant*.

In accordance with Appendix G of the State CEQA Guidelines, the Project would be considered to have a significant effect if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans,

policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service
- Have a substantial adverse effect on state- or federally protected wetlands (e.g., marshes, vernal pools, coastal wetlands) through direct removal, filling, hydrological interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedance of the use of native wildlife nursery sites
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan

3.2.5 Impacts and Mitigation Measures

Impact BIO-1: The Project could have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Implementation of Mitigation Measure MM-BIO-1 would reduce this impact to less-than-significant levels.

Housing Element Update, Zoning Code and Specific Plan Amendments, and Environmental Justice Policies

The City contains native riparian, grassland, and scrubland habitats (see Impact BIO-2, below, for details) as well as conservation lands (see Impact BIO-5, below) that have a potential to support special-status plant and animal species. The Project has been designed to avoid the placement of Opportunity Sites in areas containing greenbelts, arroyos and canyons, and other areas of high biological sensitivity (see Chapter 2, *Project Description*). Consequently, the majority of suitable habitat to support special-status species within the City would be avoided. However, small patches of suitable habitat are present within areas designated as Opportunity Sites (for example: Ward 3 [Assessor's Parcel Numbers (APNs) 223210020 & 223210021], Ward 4 [APNs 280260037 & 280260033], and Ward 6 [APNs 145022009 & 145022003]). Construction activities of future development under the Housing Element Update could result in direct and indirect impacts on special-status plant and animal species, as described below, although impacts are expected to be minor given the placement of the Opportunity Sites within urban, developed areas. Special-status plant and animal species and their habitat requirements, regulatory status, and potential for occurrence within the City are described in Appendix D.

Due to the scope of this EIR, the impact analyses for special-status species included in this EIR are broad and qualitative. Detailed, quantitative assessments for special-status species may be required for individual development projects.

Special-Status Plant Species

During the desktop analysis of the City, special-status plant species were noted to have some potential to occur within the City (see Table 3.2-2).

Project activities under the Housing Element Update could directly affect special-status plant species that have a potential to occur within the City through the permanent and temporary construction removal of suitable habitat, including riparian, grassland, and scrubland natural communities, should they be present within any of the Opportunity Sites during future development. Loss of suitable and occupied habitat could result in less available habitat to support special-status plant species in the region. If areas that are temporarily disturbed are not successfully restored, and suitable habitat does not reestablish, then individuals and populations of special-status plant species may not occur in areas that they had previously occupied.

Direct effects on special-status plant species from construction of future development, including grading, excavating, soil stockpiling, or other earth-disturbing activities, could also include direct mortality of individual plants, plant injury, and alteration of plant community structure. The use of construction equipment, machinery, and vehicles within areas supporting special-status plant species could result in individual plants being run over during construction work, leading to either injury or mortality. The increased human presence during new construction activities could also increase the potential for trampling of individual plants. Plants that are damaged may not produce as many flowers or seeds due to injury-induced physiological stressors. Clearing and grading activities could disturb and compress soils, potentially damaging and destroying seed banks and preventing or reducing future utilization of the area by these species by inhibiting root penetration of the soil surface. Plant injury and mortality and damage to seed banks could result in direct take of federally or state-listed plants, should they be present. In addition, construction could increase the potential for fire in the area (e.g., sparks from equipment and machinery), which could directly and indirectly affect any special-status plant species present. These effects could be both short- and long-term in nature, depending on the construction duration.

Temporary disturbances from construction of new development under the Housing Element Update could result in indirect impacts on special-status plant species, should they be present in the area surrounding the development footprint of individual projects. Indirect impacts may consist of dust, erosion, chemical spills, trash and debris, and introduction of invasive species. Exposure of special-status plant species to dust from construction activities (e.g., ground disturbance, movement of heavy equipment and vehicles) could potentially decrease the ability of plants to photosynthesize. Construction equipment, vehicles, or imported materials used during vegetation clearing and construction could introduce and spread non-native invasive plant species via mud and other debris tracked in from other sites that may contain invasive plants and/or seeds. Invasive plant species could out-compete special-status plant species for resources like water and space, which could either reduce their reproductive productivity (i.e., reduce the amount of flowers and/or seeds produced) or displace them from the area. These indirect impacts could alter plant community structures, and suitable habitat could become degraded and monotypic, thereby reducing the quality and diversity of native vegetation communities within the City. Sites that are degraded due to exposure to indirect stressors may no longer provide the habitat features required by special-status plant species, preventing or reducing colonization of the area by these species.

Negative physiological stressors resulting from reduced photosynthesis or competition with invasive plant species could lead to energetic losses and increased stressors to special-status plants,

potentially resulting in lowered reproductive performance, increased susceptibility to diseases, and death.

Special-Status Fish Species

Suitable habitat for special-status fish species does not occur within any of the proposed Opportunity Site locations. Consequently, no direct or indirect impacts on special-status fish species are anticipated from the Housing Element Update.

Species-Status Wildlife Species

The Project could directly affect special-status invertebrate, amphibian, reptile, bird, and mammal species with a potential to occur in the City (see Table 3.2-2) through the permanent and temporary construction removal of suitable habitat (3.06 acres), including riparian, scrublands, and grasslands vegetation communities (see Impact BIO-2, Table 3.2-6). These direct impacts would result from construction of future development projects facilitated by the Project. Loss of suitable and occupied habitat could result in less available foraging, nesting, roosting, and breeding habitat for special-status wildlife species in the region. However, due to the small amount of suitable habitat that is expected to be removed, these potential impacts are anticipated to be minor. In addition, given that these patches of suitable habitat are small and surrounded by development, there is a low potential for special-status wildlife species to be present.

Should any special-status wildlife species be present, construction activities related to future development facilitated by the Project could result in direct mortality, injury, or harassment of individual special-status wildlife. The use of construction equipment, machinery, and vehicles within areas occupied by special-status wildlife could cause individuals to be struck during construction activities, leading to injury or mortality. Ground disturbance could crush or entomb individuals in their burrows (e.g., amphibians, reptiles, burrowing owls, small and medium-sized mammals). Should any special-status wildlife become trapped in unburied pipes or conduits or uncovered holes or trenches, they could be injured or killed. Capturing, handling, and relocating special-status wildlife that occur within construction areas could cause injury or death if proper handling and relocation techniques are not used. Capture and relocation could also cause strain and stress on, and displacement of, individuals. Exposure to toxic contaminants and pollutants, such as inadvertent spills of gasoline, oil, or lubricants when fueling or storing construction equipment, could result in illness or mortality if an animal came into contact with the contaminant.

The removal or trimming of suitable roost trees for foliage- and/or crevice-dwelling special-status bats could directly harm roosting or hibernating bats and would reduce potential roosting habitat for these species, including mature foliage trees and trees containing snags, crevices, or peeling bark. If construction were to occur during the maternity season (typically April–August in Southern California), then young, flightless bats could be particularly susceptible to harm. Depending on whether individuals are foraging or roosting within the limits of disturbance, all life stages of special-status bats associated with the breeding season could be exposed to these stressors.

Implementation of the Housing Element Update also has the potential to temporarily directly affect special-status wildlife species from the use of heavy equipment, machinery, and pile driving operations associated with construction of future developments, which could produce loud noises and ground vibrations that stress and strain individuals. Masking (i.e., the inability to hear environmental cues and animal signals) could limit an individual's ability to communicate and receive important cues from the environment and other wildlife, which could negatively impact

their ability to procreate and respond to a threat, as well as increase the risk of predation. However, depending on the noise levels and duration, animals may also adjust behavior to acclimate to the disturbance, such as adjusting calling height and location, turning their heads, increasing their call volume, and timing calls during periods of low noise. Depending on what time of year construction is done, all life stages of special-status wildlife associated with the breeding season could be exposed to noise and vibration stressors.

The City's noise code limits construction activities to 7 a.m. to 7 p.m. Monday through Saturday and 8 a.m. to 5 p.m. on Sunday. Therefore, no substantial nighttime construction would occur. If construction occurs after dark, activities (e.g., foraging) of nocturnal species could be altered and resting diurnal species in the area (e.g., nesting birds) could be disturbed. In addition, artificial lighting at night may increase predation risk of special-status wildlife by allowing predators, such as owls, to hunt more efficiently.

Construction at Opportunity Sites containing or adjacent to suitable habitat could also expose special-status wildlife to indirect stressors. The presence of construction personnel could disturb individuals occupying the area. Increased human activity could produce trash and construction-related debris piles, which could draw opportunistic predators that are attracted to litter to the area, such as coyote, raccoon, common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), and feral cats. Increased predation risks could result in mortality of both adults and young. Project personnel could collect individuals or bring pets on site, which could harass or kill special-status wildlife.

The direct and indirect effects from exposure to stressors such as increased noise levels, ground vibrations, night lighting, and increased risk of predation and harassment could lead to behavioral modifications and negative physiological stressors. Behavioral modifications, including habitat avoidance and nest/burrow/roost abandonment, could result in decreased reproductive success. Habitat avoidance could reduce the availability of suitable breeding and foraging habitat for special-status wildlife, making successful reproduction more challenging. Nest/burrow/roost abandonment could result in the death of young. Physiological stressors could lead to energetic losses and increased stressors to the body, potentially resulting in lowered reproductive performance, increased susceptibility to diseases and predation, inability to successfully forage and feed young, and death of both adults and young. Depending on whether individuals are foraging or breeding in the area, all life stages of special-status wildlife associated with the breeding season could be exposed to these stressors.

Construction activities could also result in indirect stressors on suitable and occupied habitat for special-status wildlife. Potential indirect impacts may include edge effects and degradation of native vegetation communities and water quality associated with litter, fire, introduction of invasive plant species, erosion, sedimentation, chemical spills during construction, and dust and pollutants associated with vehicles and machinery. Indirect effects on suitable habitat could cause special-status wildlife to cease using the area within and adjacent to construction footprints if habitat restoration has limited success and/or habitat degradation was severe enough to diminish resources needed for foraging and nest/burrow/roost placement and construction. Edge effects and degraded native habitat could create hospitable habitats for predators of native wildlife species. Fires within suitable habitat could result in loss of suitable foraging and breeding habitat and, if during the breeding season, death of young.

Other potential impacts on suitable habitat include the compaction of soil due to construction vehicles, which may decrease the availability of friable soils for burrow creation. Soil that is not decompacted following construction so that it is friable enough for digging burrows could prevent burrowing animals from moving back into the area.

Policies related to environmental justice under the proposed Housing Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe how future development and construction would be implemented with respect to environmental justice communities, housing design, affordable housing, and access to healthy and affordable foods. Implementation of these policies would not affect special-status plant or animal species. The proposed rezoning that would occur as part of the Project would accommodate future housing and mixed-use development on the Opportunity Sites. No Residential Conservation Zones, which protect hillside areas in the City, are proposed for zoning changes; as such, impacts on special-status species as a result of the proposed rezoning are expected to be minimal and have already been analyzed above. The proposed rezoning would not result in any separate, discrete impacts that have not been previously discussed.

Policies related to environmental justice under the proposed Housing Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe how future development and construction would be implemented with respect to environmental justice communities, housing design, affordable housing, and access to healthy and affordable foods. Implementation of these policies would not affect special-status plant or animal species.

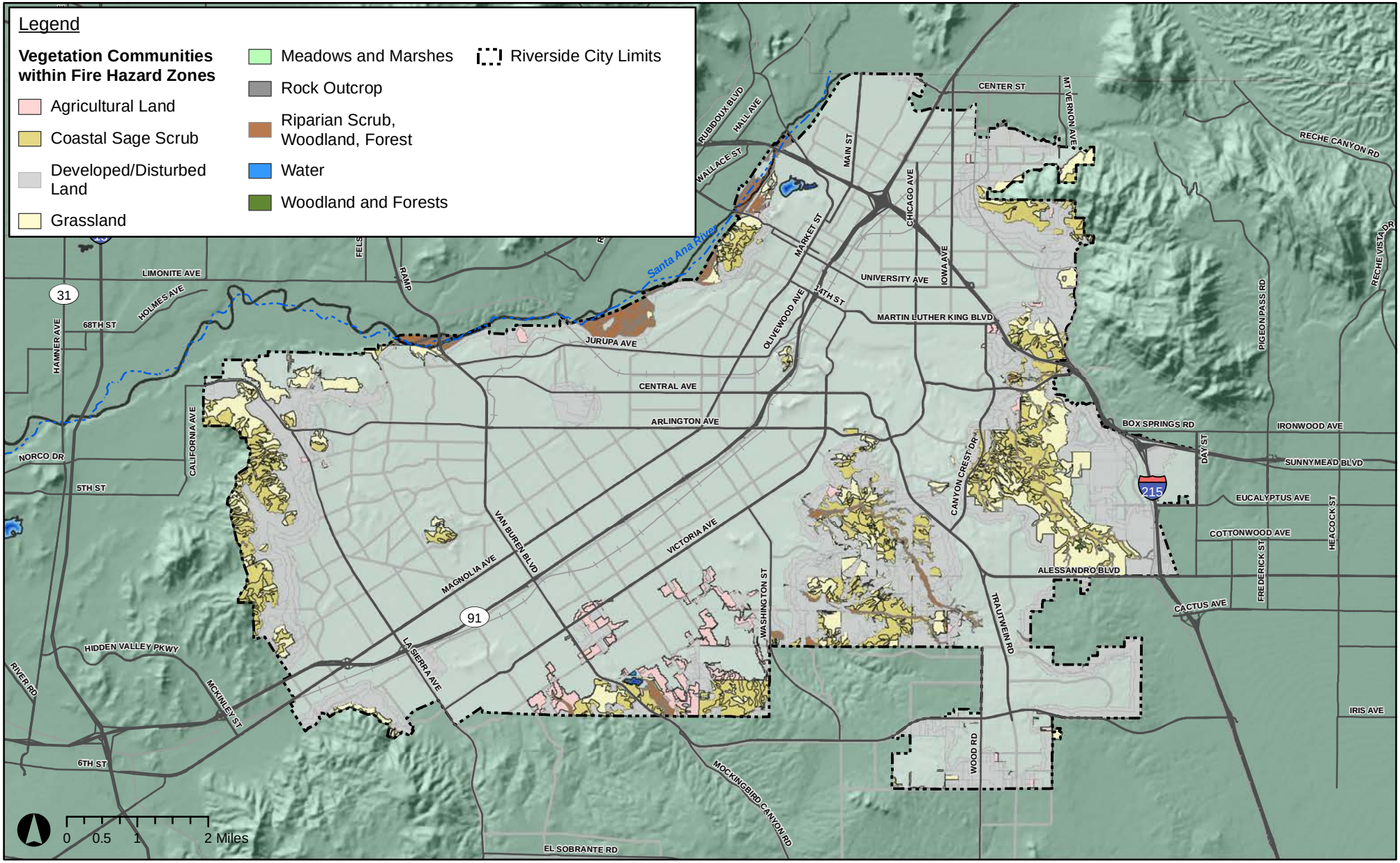
Although future development projects facilitated by the Housing Element Update and Zoning Code and Specific Plan amendments could result in the removal and/or disturbance of suitable habitat for special-status species, and direct and indirect impacts on individuals, and Opportunity Site projects that are not eligible for the ministerial approval process (and not projects per CEQA), implementation of Mitigation Measure **MM-BIO-1** would avoid or minimize any potential impacts on special-status plant and/or animal species. Because the City is a permittee in the WRC MSHCP, each individual development project would go through the WRC MSHCP consistency review process to ensure that it is consistent with the requirements of the plan and, as described in Mitigation Measure **MM-BIO-1**, would implement additional project-specific mitigation as needed. The WRC MSHCP consistency review for specific developments may include habitat assessments and protocol surveys for riparian bird species, habitat assessments and focused surveys for burrowing owl, surveys for amphibians and mammals, habitat assessments and protocol surveys for listed fairy shrimp species, and quantification of impacts on coastal sage scrub suitable habitat for coastal California gnatcatcher. The methods and results of any required survey would be provided to the RCA and wildlife agencies for any impacts within Riparian/Riverine areas or Cell areas as part of the WRC MSHCP consistency review. Consistency with the WRC MSHCP would ensure that impacts on sensitive or listed species would be mitigated on a biologically equivalent basis. Consequently, impacts on special-status species would be less than significant with implementation of this measure and individual project-specific consistency with the WRC MSHCP.

Public Safety Element Update and Environmental Justice Policies

Suitable habitat to support special-status plant and animal species is within the Fire Hazard Areas of the City identified in the Public Safety Element, including riparian, grassland, and scrubland vegetation communities (Figure 3.2-4).

Figure 3.2-4

Fire Hazard Zones



The Public Safety Element Update policies and implementing actions aim to reduce the risk to the community and to ensure protection from foreseeable natural and human-caused hazards. These policies and implementing actions address natural hazards; transportation hazards; police, fire, and emergency services; pandemic preparedness and response; homelessness; and climate change and resiliency. The Public Safety Element Update also includes policies and implementing actions related to management of hazardous materials and other safety topics related to emergency access and pedestrian safety that could eventually become roadways, sidewalks, and bike paths. Public Safety Element Update policies and implementing actions could affect the fire control measures that are implemented by the City to reduce the risk of wildland fires within the Fire Hazard Area, such as brush-clearance activities. However, no specific infrastructure improvements or projects are identified in the Public Safety Element Update. As this is a policy document, this update would not have any significant direct or indirect impacts on special-status plant or animal species. Impacts would be less than significant.

Policies related to environmental justice under the proposed Public Safety Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe treatment of hazardous materials associated with contaminated sites within environmental justice communities; access to affordable housing, health care, and emergency services; the needs of environmental justice communities in planning for emergency response and recovery; the health implications for land use decisions that could involve hazardous uses; and the potential for vehicular and pedestrian accidents in underserved areas. Implementation of these policies would not affect special-status plant or animal species.

Mitigation Measures

The potential impacts of the Project described in this section would be reduced to less-than-significant levels with implementation of the following mitigation measure.

MM-BIO-1: Conduct literature review, habitat assessment, and surveys.

Preliminary Review: Prior to construction on Opportunity Sites that are vacant or where the potential presence of biological or aquatic resources exists, a consistency review shall be performed to ensure that the project is consistent with the requirements of the WRC MSHCP. For the project-specific WRC MSHCP consistency process, the applicant shall employ a qualified biologist approved by the City to review the future Opportunity Site project. The qualified biologist shall conduct a site-specific literature review, which shall consider, at a minimum, the future development project, site location, GIS information, WRC MSHCP survey areas and requirements, and known sensitive biological resources. The review shall assess the site for special-status plants and/or wildlife, aquatic resources, sensitive natural communities, wildlife corridors or nurseries, or other regulated biological resources covered by the WRC MSHCP and/or pursuant to CEQA, FESA, or CESA that could be affected by the project. In some cases, a literature review would be sufficient for the biologist to make a no impact and/or a less-than-significant impact determination for all six of the thresholds of significance (Section 3.2.4) of biological resources and/or the determination that the project is consistent with the WRC MSHCP. In this case, no further work shall be required, and if deemed necessary by the City, a summary report stating the basis for these findings, identifying each threshold of significance with a CEQA finding, shall be the only requirement.

Habitat Assessment Survey: If, during the preliminary review, it is determined that potential biological resources including any species covered under the MSHCP exist on the individual Opportunity Site that could be affected, then a habitat assessment survey shall be required unless a qualified biologist determines that a field review/habitat assessment is not needed. If needed, and/or the project is in a WRC MSHCP designated survey area, this survey shall consist of a site visit conducted by a qualified biologist, where the proposed individual development project and adjacent buffer (as appropriate for the target species relative to the potential project direct and indirect impacts) shall be assessed for WRC MSHCP covered species and habitats; candidate, sensitive, or special-status plants and/or wildlife; aquatic resources; sensitive natural communities; and wildlife corridors or nurseries while identifying and mapping all vegetation communities and land-cover types. If suitable habitat is present for candidate, sensitive, or special-status plants or animals and cannot be avoided, then focused protocol surveys may be required, as determined by the qualified biologist, with appropriate reporting. If aquatic resources are present and cannot be avoided, a jurisdictional delineation may be required. Mitigation shall include an analysis of all the biological resources identified in the thresholds of significance, with a determination made regarding significance for each threshold. Reporting shall include regulatory assessment, impact analyses, and identification and implementation of appropriate measures based on the presence of biological resources.

Reduce and Avoid Impacts: If, following the literature review and surveys for Opportunity Sites, it is determined that the site would not directly or indirectly affect any WRC MSHCP covered species or habitats; candidate, sensitive, or special-status plants and/or wildlife; aquatic resources; sensitive natural communities; or wildlife corridors or nurseries, then no further action or WRC MSHCP consistency analysis shall be required. If, however, it is determined that impacts on WRC MSHCP covered species or habitats; candidate, sensitive, or special-status plants and/or wildlife; aquatic resources; sensitive natural communities; or wildlife corridors or nurseries would occur and therefore would be considered significant, then additional mitigation measures as recommended by the qualified biologist and approved by the Planning Division shall be implemented to avoid or reduce impacts to the maximum extent feasible.

Impact BIO-2: The Project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Implementation of Mitigation Measure MM-BIO-1 would reduce this impact to less-than-significant levels.

Housing Element Update, Zoning Code Amendments, and Environmental Justice Policies

The Project has been designed to avoid the placement of Opportunity Sites in areas containing greenbelts, arroyos and canyons, and other areas of high biological sensitivity (see Chapter 2, *Project Description*). Consequently, the majority of sensitive natural communities within the City would be avoided under the Housing Element Update. However, small patches of sensitive natural communities are present within areas designated as Opportunity Sites (for example: Ward 3 [APNs 223210020 & 223210021], Ward 4 [APNs 280260037 & 280260033], and Ward 6 [APNs 145022009 & 145022003]). Permanent and temporary direct and indirect impacts could occur on these sensitive natural communities as a result of construction activities of future development

projects facilitated by the Housing Element Update, although impacts are expected to be minor given the placement of the Opportunity Sites within urban, developed areas (Table 3.2-6).

A few small patches of southern willow scrub and coastal scrub are present within the areas proposed as Opportunity Sites, as classified as sensitive communities by CNDDB (CDFW 2021a) and Holland (1986). Southern willow scrub is in the southeastern corner of the City, and coastal scrub occurs in the southeastern corner and western edge of the City (Figure 3.2-5).

No other sensitive natural community types (e.g., essential fish habitat) are within the City. However, the vegetation mapping used in this EIR is broad scale across the larger landscape and may not capture exact conditions on the ground. In addition, habitat conditions may change over time. As such, sensitive natural communities may occur in areas not shown on Figure 3.2-5.

Disturbance and Removal of Vegetation

Project activities facilitated by the Project could result in permanent and temporary impacts on sensitive natural communities as a result of construction activities should the specific development project(s) be within an area that supports sensitive communities. The construction of new development facilitated by the Project could result in permanent impacts from construction-related activities, including the removal of existing vegetation and encroachment into sensitive natural communities that may have permanent effects. Temporary direct impacts could include incidental disturbances within and adjacent to construction areas and clearing and grubbing for equipment staging and temporary construction access routes.

Potential Project impacts are shown in Table 3.2-6, based on broad-scale landscape mapping using RCA Western Riverside Vegetation Map data (RCA 2012). Because details of individual future specific development projects are not currently available, permanent versus temporary impacts cannot be determined at this time and will be assessed on a project-level basis during the independent development review for each future project.

Table 3.2-6. Impacts on Natural Vegetation Communities under the Housing Element Update

Natural Community/Land Cover Type	Project Impacts (acres)
Riparian Scrub, Woodland, and Forest	
Southern Willow Scrub	0.53
Coastal Sage Scrub	
Coastal Scrub	1.51
Grassland	
Non-Native Grassland	1.02
TOTAL	**3.06**

Habitat Degradation from Indirect Effects

Temporary indirect impacts on sensitive natural communities that are adjacent to Opportunity Sites may be caused by construction activities (e.g., soil compaction, introduction of invasive species, dust, increased fire risk, chemical spills, sedimentation), which could lead to the degradation of native habitats and floodplains.

The movement of heavy equipment and supplies during construction of future development could compact the soil, affecting vegetation germination and growth. Soil compaction occurs when soil particles are pressed together, reducing pore space between them. Heavily compacted soils contain few large pores, which are the most effective in moving water through the soil when it is saturated, and thus have a reduced rate of both water infiltration and drainage from the compacted layer. In addition, the exchange of gases slows down in compacted soils, causing an increase in the likelihood of root aeration problems. Soil compaction from constructing future development projects facilitated by the Project could inhibit seed germination and root penetration in the soil surface and could result in bare soil, sparsely vegetated areas, or a substantial change in species composition following construction in temporary areas. Without proper BMPs, vegetation removal and soil compaction would expose soil to the erosive forces of rain and overland stormwater runoff, causing sediment to smother vegetation within and beyond project footprints, especially in areas with steep terrain.

The construction of future development could also have adverse effects on sensitive natural communities and native plants as a result of the introduction and spread of invasive plant species through construction activities throughout the project footprint and surrounding area. Construction activities could introduce and increase the spread of non-native and invasive plants in the following ways:

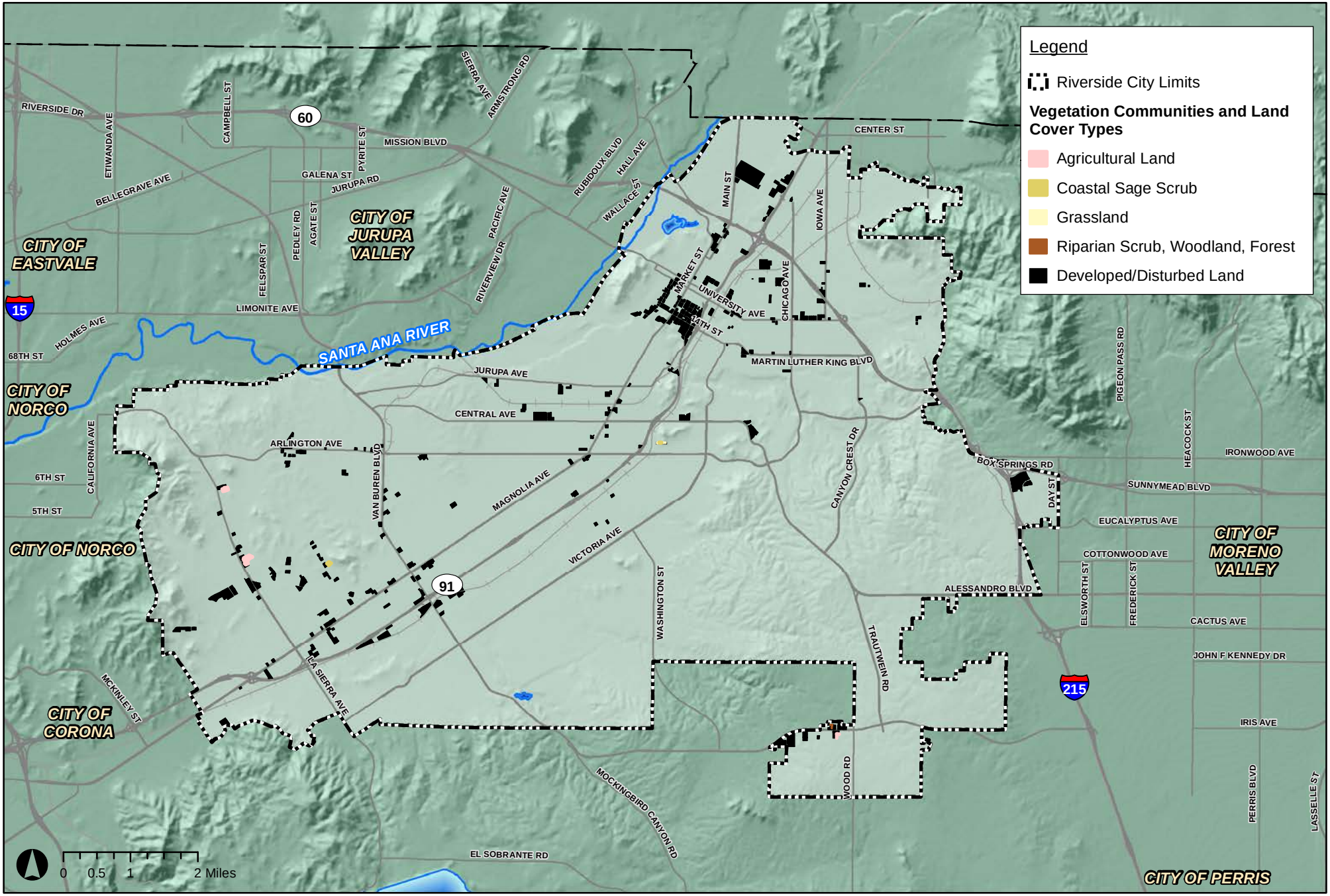
1. Construction equipment could carry invasive plant seeds or plant parts from infested areas outside of construction areas into construction areas.
2. Construction equipment could disturb existing invasive plant infestations in the project site and cause the spread of these infestations throughout the surrounding area.
3. Fill material containing invasive plants could be used
4. Seed mixtures containing non-native or invasive plant seeds could be used for revegetating construction staging areas.

Invasive plants are often more aggressive than native vegetation, and the disturbed conditions of a construction site create an environment (e.g., bare and compact soil, disturbed surfaces) where some invasive plants thrive. Invasive plant species threaten the diversity and abundance of native plant species through competition for resources, hybridization with native populations, and physical or chemical alteration of the invaded habitat. The introduction of species such as giant reed and salt cedar to waterways can substantially alter the natural hydrology, flood regime, and channel characteristics by using more water than native plants, providing limited shade (which increases water temperatures and, in-turn, algae growth), and reducing water quality from decaying vegetation, as well as crowding out native plants and degrading riparian habitat. Unlike the native plants they displace, many invasive plant species do not provide the food, shelter, or other habitat components on which many native fish and wildlife species depend. In addition, dense stands of non-native plant species such as annual grasses, giant reed, and salt cedar are highly flammable and increase the risk of fire in riparian and other natural communities.

During construction activities, the operation of heavy equipment could generate fugitive dust from loose soil. Any accumulation of fugitive dust on vegetation could affect plant growth by inhibiting photosynthesis and reducing vegetation density and plant diversity. More tolerant native plant species could benefit from decreased competition. However, invasive plants could colonize and disrupt the overall plant ecosystem. The magnitude and duration of dust exposure, tolerance of

Figure 3.2-5

Housing Element Impacts on Vegetation Communities



native vegetation, and aggressiveness of invasive plants would determine vegetation response and the intensity of impacts.

Accidental release of contaminants during construction, such as an inadvertent spill of gasoline, oil, or lubricants when fueling or storing construction equipment, could affect plant growth and survival. Accidental releases of hazardous materials could negatively affect plant communities in the vicinity of the spill. The magnitude of impacts would depend on the type and volume of material spilled, the location, and the habitat affected. However, an uncontained spill of hazardous materials would likely be relatively small and affect a limited area because the volume of these materials that may be present at a construction location would be relatively small, BMPs would typically be in place, and there would be no storage of hazardous materials within sensitive habitats at Opportunity Site locations.

The proposed rezoning that would occur as part of the Project would accommodate housing and mixed use on the Opportunity Sites. No Residential Conservation Zones, which protect hillside areas, are proposed for zoning changes; as such, impacts on sensitive natural communities as a result of the proposed rezoning are expected to be minimal and have already been analyzed above. The proposed rezoning would not result in any separate, discrete impacts that have not been previously discussed.

Policies related to environmental justice under the proposed Housing Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe how future development and construction would be implemented with respect to environmental justice communities, housing design, affordable housing, and access to healthy and affordable foods. Implementation of these policies and implementing actions would not affect sensitive natural communities.

Although future development under the Housing Element Update and Zoning Code and Specific Plan amendments could result in the removal and/or disturbance of sensitive natural communities, and Opportunity Site projects that are not eligible for the ministerial approval process (and not projects per CEQA), implementation of Mitigation Measure **MM-BIO-1** (see Impact BIO-1) would avoid or minimize any potential impacts on sensitive natural communities. Because the City is a permittee in the WRC MSHCP, each individual development project would go through the WRC MSHCP consistency review process to ensure that it is consistent with the requirements of the plan and, as described in Mitigation Measure **MM-BIO-1**, would implement additional project-specific mitigation to achieve biological equivalency pursuant to the plan, as needed. Consequently, impacts on sensitive natural communities would be less than significant with implementation of this measure and individual project-specific consistency with the WRC MSHCP.

Public Safety Element Update and Environmental Justice Policies

Ten natural vegetation communities are within the Fire Hazard Area of the City identified in the Public Safety Element, including arundo/riparian forests, mulefat scrub, southern cottonwood-willow riparian forest, southern riparian forest, southern sycamore-alder riparian woodland, southern willow scrub, marsh, coastal scrub, Riversidean sage scrub, and non-native grassland (Figure 3.2-4). All of these communities, except for non-native grassland, are classified as sensitive communities by CNDDB (CDFW 2021a) and Holland (1986).

No USFWS designated critical habitat is present within the Fire Hazard Area of the City under the Public Safety Element (USFWS 2021b).

No other sensitive natural community types (e.g., essential fish habitat) are within the City. However, the vegetation mapping used in this EIR is broad scale across the larger landscape and may not capture exact conditions on the ground. In addition, habitat conditions may change over time. As such, sensitive natural communities may occur in areas not shown on Figure 3.2-4.

The Public Safety Element Update includes policies and implementing actions that aim to reduce the risk to the community and to ensure protection from foreseeable natural and human-caused hazards, as described in Impact BIO-1 above. Public Safety Element Update policies and implementing actions could affect the fire control measures that are implemented by the City to reduce the risk of wildland fires within the Fire Hazard Area, such as brush-clearance activities. However, no specific infrastructure improvements or projects are identified in the Public Safety Element Update. As this is a policy document, this update would not have any significant direct or indirect impacts on sensitive natural communities. Impacts would be less than significant.

Policies related to environmental justice under the proposed Public Safety Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe treatment of hazardous materials associated with contaminated sites within environmental justice communities; access to affordable housing, health care, and emergency services; the needs of environmental justice communities in planning for emergency response and recovery; health implications for land use decisions that could involve hazardous uses; and the potential for vehicular and pedestrian accidents in underserved areas. Implementation of these policies would not affect sensitive natural communities.

Mitigation Measures

The potential impacts of the Project described in this section would be reduced to less-than-significant levels with implementation of the Mitigation Measure **MM-BIO-1** and individual project-specific consistency with the WRC MSHCP, as described under Impact BIO-1.

Impact BIO-3: The Project could have a substantial adverse effect on state- or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands) through direct removal, filling, hydrological interruption, or other means. Implementation of Mitigation Measure MM-BIO-1 would reduce this impact to less-than-significant levels.

Housing Element Update, Zoning Code Amendments, and Environmental Justice Policies

The City contains wetlands and potentially jurisdictional aquatic resources throughout the City, particularly along the Santa Ana River and its tributaries (as described in Section 3.2.2, *Environmental Setting,* under *Aquatic Resources*). The NWI identifies freshwater emergent wetland, freshwater forested/shrub wetland, freshwater pond, lake, and riverine as occurring within the City (USFWS 2021c), and the National Hydrography Dataset lists streams/rivers, canals/ditches, and pipelines as occurring within the City (USGS 2021). The Project has been designed to avoid the placement of Opportunity Sites in areas containing greenbelts, arroyos and canyons, and other areas of high biological sensitivity (see Chapter 2, *Project Description*). Consequently, the majority of wetlands and potentially jurisdictional aquatic resources within the City would be avoided under the Housing Element Update. However, some previously unknown wetlands and potentially

jurisdictional aquatic resources may be present within or adjacent to the proposed Opportunity Sites (e.g., ditches and ephemeral drainages). Construction activities of future development under the Housing Element Update could result in direct and indirect impacts on wetlands and potentially jurisdictional aquatic resources, as described below.

Due to the scope of this EIR, the impact analyses for wetlands and potentially jurisdictional aquatic resources included in this EIR are broad and qualitative. Detailed, quantitative assessments for wetlands and potentially jurisdictional aquatic resources would be performed during the project-specific impact analysis that would occur during the independent development review process for each individual development project facilitated by the Project.

Construction of future development projects within proposed Opportunity Sites facilitated by the Project could directly affect wetlands or potentially jurisdictional aquatic resources that have a potential to occur within the proposed Opportunity Sites through permanent and temporary construction activities, should they be present (USFWS 2021c). If areas that are temporarily disturbed are not successfully restored, then wetlands and/or potentially jurisdictional aquatic resources may no longer occur in areas that they had previously occupied, or they could be restored, but at a diminished level of biological functions and values.

Direct effects on wetlands and/or jurisdictional aquatic resources could result from construction activities for future development, including grading, excavating, soil stockpiling, or other earth-disturbing activities. The use of construction equipment, machinery, and vehicles within wetlands and/or jurisdictional aquatic resources could change or remove the soil, hydrology, vegetation, or other resource conditions during construction work, leading to decreased quality or loss of those conditions. Clearing and grading activities, as well as elevation modifications, could disturb and compact soils and affect hydrological conditions. These effects could be both short- and long-term in nature during the course of construction in or near these features.

Permanent and temporary disturbances from construction of future development could result in indirect impacts on wetlands and/or potentially jurisdictional aquatic resources present in the area surrounding the development site. Indirect impacts could include the introduction of non-native species, erosion, sedimentation, chemical spills, and alteration of downstream hydrological conditions. Construction equipment, vehicles, or imported materials used during construction of future development could introduce and spread non-native invasive plant species via mud and other debris tracked in from other sites that may contain invasive plants and/or seeds. Invasive plant species could out-compete native wetland plant species for resources such as water and space, which could either reduce their reproductive productivity (i.e., reduce the amount of flowers and/or seeds produced) or displace them from the area. Sites that are degraded due to exposure to indirect stressors may become increasingly low value over time, or no longer exhibit the wetland or aquatic resource conditions. Erosion, sedimentation, and chemical spills may also reduce the quality of the wetlands and/or jurisdictional aquatic resources, and the accumulation of soils from erosion or sedimentation could fill and remove the resource.

The proposed rezoning that would occur as part of the Project would accommodate housing and mixed-use development on the Opportunity Sites. No conservation zones are proposed for zoning changes; as such, impacts on wetlands and/or potentially jurisdictional aquatic resources as a result of the proposed rezoning are expected to be minimal and have already been analyzed above. The rezone would not result in any separate, discrete impacts that have not been previously discussed.

Policies related to environmental justice under the proposed Housing Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe how future development and construction would be implemented with respect to environmental justice communities, housing design, affordable housing, and access to healthy and affordable foods. Implementation of these policies would not affect wetlands or potentially jurisdictional aquatic resources.

Although future development facilitated by the Project could result in the removal and/or disturbance of WRC MSHCP-designated Riparian/Riverine habitats, wetlands, and/or potentially jurisdictional aquatic resources, and Opportunity Site projects that are not eligible for the ministerial approval process (and not projects per CEQA), implementation of Mitigation Measure **MM-BIO-1** (see Impact BIO-1) would avoid or minimize any potential impacts on WRC MSHCP-designated Riparian/Riverine habitats, wetlands, and/or potentially jurisdictional aquatic resources. Because the City is a permittee in the WRC MSHCP, each individual development project would go through the WRC MSHCP consistency review process to ensure that it is consistent with the requirements of the plan and, as described in Mitigation Measure **MM-BIO-1**, would implement additional project-specific mitigation, as needed. Consequently, impacts on WRC MSHCP-designated Riparian/Riverine habitats, wetlands, and/or potentially jurisdictional aquatic resources would be less than significant with implementation of this measure and individual project-specific consistency with the WRC MSHCP. In addition, implementation of the Statewide NPDES Construction General Permit and construction site BMPs outlined in the Project's Stormwater Pollution Prevention Plan would reduce construction-related indirect impacts on wetlands and/or jurisdictional aquatic resources from erosion, sedimentation, and pollution.

Public Safety Element Update and Environmental Justice Policies

During the desktop analysis for the Project, wetlands and potentially jurisdictional aquatic resources were noted throughout the City, as described above.

The Public Safety Element Update includes policies and implementing actions that aim to reduce the risk to the community and to ensure protection from foreseeable natural and human-caused hazards, as described in Impact BIO-1 above. Public Safety Element Update policies and implementing actions could affect the fire control measures that are implemented by the City to reduce the risk of wildland fires within the Fire Hazard Area, such as brush-clearance activities. However, no specific infrastructure improvements or projects are identified in the Public Safety Element Update. As this is a policy document, this update would not have any significant direct or indirect impacts on wetlands and potentially jurisdictional aquatic resources. Impacts would be less than significant.

Policies related to environmental justice under the proposed Public Safety Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe treatment of hazardous materials associated with contaminated sites within environmental justice communities; access to affordable housing, health care, and emergency services; the needs of environmental justice communities in planning for emergency response and recovery; health implications for land use decisions that could involve hazardous uses; and the potential for vehicular and pedestrian accidents in underserved areas. Implementation of these policies would not affect wetlands and/or potentially jurisdictional aquatic resources.

Mitigation Measures

The potential impacts of the Project described in this section would be reduced to less-than-significant levels with implementation of the Mitigation Measure **MM-BIO-1** and individual project-specific consistency with the WRC MSHCP, as described under Impact BIO-1.

Impact BIO-4: The Project could interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites. Implementation of Mitigation Measure MM-BIO-1 would reduce this impact to less-than-significant levels.

Housing Element Update, Zoning Code Amendments, and Environmental Justice Policies

The Project has been designed to avoid the placement of Opportunity Sites in areas containing greenbelts, arroyos and canyons, and other areas of high biological sensitivity (see Chapter 2. *Project Description*), including WRC MSHCP cores and linkages. As such, there are no wildlife movement corridors or linkages within or near the proposed Opportunity Sites under the Housing Element Update. Consequently, construction of future developments facilitated by the Housing Element Update would not adversely affect the regional movements of fish or other wildlife. However, there are trees, shrubs, and structures throughout the City, including within the Opportunity Sites, that could provide suitable habitat for nesting birds, including raptors, protected by the MBTA or CFGC sections. Construction of future development has the potential to impact active native resident and/or migratory bird nests if, and to the extent that, those trees and shrubs are trimmed or removed, or the structures are demolished, during the avian nesting season and they contain nests. Construction could also occur adjacent to active nests causing nest failures or abandonment.

The proposed rezoning that would occur as part of the Project would facilitate housing and mixed-use development on the Opportunity Sites. No conservation zones are proposed for zoning changes; as such, impacts on nesting birds as a result of the proposed rezoning are expected to be minimal, and no impacts are anticipated on wildlife movement corridors, as analyzed above. The Project would not result in any separate, discrete impacts that have not been previously discussed.

Policies related to environmental justice under the proposed Housing Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe how future development and construction would be implemented with respect to environmental justice communities, housing design, affordable housing, and access to healthy and affordable foods. Implementation of these policies would not affect wildlife corridors or nursery sites.

Mitigation Measure **MM-BIO-1** (see Impact BIO-1) would avoid or minimize any potential impacts on nesting birds and WRC MSHCP specific planning species as a result of any future development under the Housing Element Update and Zoning Code amendments. Because the City is a permittee in the WRC MSHCP, each individual development project would go through the WRC MSHCP consistency review process to ensure that it is consistent with the requirements of the plan and, as described in Mitigation Measure **MM-BIO-1**, would implement additional project-specific mitigation, as needed. Therefore, the impact would be less than significant with mitigation incorporated and individual project-specific consistency with the WRC MSHCP.

Public Safety Element Update and Environmental Justice Policies

The Badlands West – Box Springs Mountains ECA occurs within the Fire Hazard Area along the northeastern border of the City identified in the Public Safety Element. In addition, arroyos and canyons that function as wildlife movement corridors are present within the foothills and mountains along the eastern, southern, and western edges of the City and occur within the Fire Hazard Area.

The Public Safety Element Update includes policies and implementing actions that aim to reduce the risk to the community and to ensure protection from foreseeable natural and human-caused hazards, as described in Impact BIO-1 above. Public Safety Element Update policies and implementing actions could affect the fire control measures that are implemented by the City to reduce the risk of wildland fires within the Fire Hazard Area, such as brush-clearance activities. However, no specific infrastructure improvements or projects are identified in the Public Safety Element Update. As this is a policy document, this update would not have any significant direct or indirect impacts on wildlife movement corridors or nursery sites. Impacts would be less than significant.

Policies related to environmental justice under the proposed Public Safety Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe treatment of hazardous materials associated with contaminated sites within environmental justice communities; access to affordable housing, health care, and emergency services; the needs of environmental justice communities in planning for emergency response and recovery; health implications for land use decisions that could involve hazardous uses; and the potential for vehicular and pedestrian accidents in underserved areas. Implementation of these policies would not affect wildlife movement corridors or nursery sites.

Mitigation Measures

The potential impacts of the Project described in this section would be reduced to less-than-significant levels with implementation of the Mitigation Measure **MM-BIO-1** and individual project-specific consistency with the WRC MSHCP, as described under Impact BIO-1.

Impact BIO-5: The Project could conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. Implementation of Mitigation Measure MM-BIO-1 would reduce this impact to less-than-significant levels.

The City overlaps with two adopted HCPs/MSHCPs: WRC MSHCP and SKR HCP. Some of the Project elements occur within conservation lands under these plans; as such, Project activities have the potential to conflict with the provisions outlined in these HCPs/MSHCPs, as described below. Impacts on special-status species, natural communities, wetlands and other waters, and wildlife movement corridors that occur in lands within these HCPs would be similar to those described in Impacts BIO-1 through BIO-4 above.

Housing Element Update, Zoning Code Amendments, and Environmental Justice Policies

Western Riverside County MSHCP

The entire City occurs within the boundaries of the WRC MSHCP area (Figure 3.2-3). The Project has been designed to avoid the placement of Opportunity Sites in areas containing greenbelts, arroyos and canyons, and other areas of high biological sensitivity, including WRC MSHCP areas (see Chapter 2, *Project Description*). Consequently, the majority of WRC MSHCP areas within the City would be avoided under the Housing Element Update (e.g., habitat management units, area plans and subunits, PQP conserved lands, criteria cells, cores and linkages, species survey areas). However, small portions of MSHCP areas are present within areas designated as Opportunity Sites (Table 3.2-7). Construction of future development may affect lands within the WRC MSHCP necessary to fulfill the conservation objectives of the overall Reserve Assembly. WRC MSHCP area components that are within proposed Opportunity Sites and may be affected are listed in Table 3.2-7. In addition, construction of future development could affect WRC MSHCP-designated riparian/riverine resources, including riparian habitats, open waters, wetlands, and riparian species, as described in Impacts BIO-1 through BIO-3 above.

Construction of future development may remove habitat within WRC MSHCP conservation areas. To compensate for any loss of conservation areas in the WRC MSHCP, Project applicants must coordinate with the wildlife agencies and RCA to develop a mitigation plan that demonstrates biological equivalency to offset any losses and to ensure that the Project is consistent with the WRC MSHCP. Any activity associated with individual development projects that occurs within the boundaries of the WRC MSHCP would comply and be consistent with the policies, goals, objectives, and conservation measures of the WRC MSHCP. Because the specific details of future development projects facilitated by the Project are not known at this time, the exact impacts on WRC MSHCP conservation areas resulting from construction activities cannot be predicted. Quantitative analysis of the exact areas, acreages, and protected resources under the WRC MSHCP to be affected by each future development would be performed at a project-by-project level during each project's independent development review process to ensure consistency with the WRC MSHCP. Implementation of Mitigation Measure **MM-BIO-1** and compliance with the WRC MSHCP would reduce any potential impacts to less-than-significant levels.

Table 3.2-7. WRC MSHCP Conservation Areas within Opportunity Sites under the Housing Element Update

WRC MSHCP Area Component	WRC MSHCP Area Component within Opportunity Sites	Opportunity Sites
Habitat Management Units	River, San Timoteo, Gavilan	Wards 1–7
Area Plans and Subunits	City of Riverside and Norco Area Plan: Subunit 1 Santa Ana River South	Ward 3 (APNs 190035003, 190035004, & 190035005)
Criteria Cells	621	Ward 3 (APNs 190035003, 190035004, & 190035005)
PQP conserved lands Object IDs	None	N/A

WRC MSHCP Area Component	WRC MSHCP Area Component within Opportunity Sites	Opportunity Sites
Cores and Linkages	None	N/A
Survey Areas	Burrowing Owl Survey Area	Ward 1 (APNs 206100016, 206100054, 206122007, 206122008, 206122022, 206132035, 206132036, 206132037, 210160021, & 215240001), Ward 2 (APNs 91460015, 291460045, 291460046, 291460047, 291460048, 291460049, 291460050, 291460051, 291460052, & 291460053), Ward 3 (APNs 222250021, 223210020, 223210021, 223210022, 226100001, 226100002, 226100003, 226100004, 226100005, 226100022, 226100023, 226100026, 226100028, & 226112024), Ward 4 (APNs 266020059, 266020061, 266040019, 266040034, 274120017, & 274130038), Ward 5 (APNs 233180004, 234050021, 234050022, 234140019, & 234150046), Ward 6 (APNs 132020033, 138052009, 138052010, 138052011, 138052012, 138052013, 138052014, 138052015, 138052016, 138052017, 138052018, 138052019, 143080020, 143080022, 143080030, 143080032, 143270014, 143280028, 143280029, 143280030, 143280031, 143332002, 145022003, & 145022009), Ward 7 (APNs 141350005, 146210024, 155290015, 155290016, 155290018, 155290019, & 155290063)

Stephens' Kangaroo Rat HCP

The southeastern portion of the City occurs within the boundaries of the SKR HCP Sycamore Canyon Core Reserve Area (Figure 3.2-3). No Opportunity Sites are proposed within the reserve area. Although all of the Opportunity Sites occur within the SKR HCP Fee Area, these sites are within developed and ruderal areas (i.e., areas composed of non-native grasses and forbs that often experience human-related disturbances such as grading or mowing) that do not contain suitable habitat to support Stephens' kangaroo rat. The ruderal areas within the Opportunity Sites are surrounded by development and are composed of small, isolated patches of fragmented habitat that would not support Stephens' kangaroo rat. As such, the Housing Element Update would not affect suitable SKR HCP lands, including designated core reserves, plan fee areas, and suitable and occupied habitat for Stephens' kangaroo rat and, therefore, would not conflict with the plan's provisions. Because the Opportunity Sites do not contain suitable habitat for Stephens' kangaroo rat and are outside of the reserve area, there would be no survey requirement for Stephens' kangaroo rat.

The proposed rezoning that would occur as part of the Project would accommodate housing and mixed-use development on the Opportunity Sites. No conservation zones are proposed for zoning

changes; as such, impacts on any HCPs/MSHCPs as a result of the proposed rezoning are expected to be minimal and have already been analyzed above. The rezone would not result in any separate, discrete impacts that have not been previously discussed.

Policies related to environmental justice under the proposed Housing Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe how future development and construction would be implemented with respect to environmental justice communities, housing design, affordable housing, and access to healthy and affordable foods. Implementation of these policies would not affect any HCPs/MSHCPs.

Any activity associated with individual development projects that occurs within the boundaries of the SKR HCP within the City would comply and be consistent with the policies, goals, objectives, and conservation measures of the SKR HCP, ensuring that impacts would be less than significant.

Public Safety Element Update and Environmental Justice Policies

Western Riverside County MSHCP

The City occurs within the boundaries of the WRC MSHCP area (Figure 3.2-3). The majority of WRC MSHCP areas within the City do not occur within the Fire Hazard Area of the City, as identified in the Public Safety Element (e.g., habitat management units, area plans and subunits, PQP conserved lands, criteria cells, cores and linkages, species survey areas). However, small portions of the WRC MSHCP are present within the Fire Hazard Area of the City, as identified in the Public Safety Element (Table 3.2-8).

Table 3.2-8. WRC MSHCP Conservation Areas within the Fire Hazard Areas under the Public Safety Element Update

WRC MSHCP Area Component	WRC MSHCP Area Component within Fire Hazard Areas
Habitat Management Units	River, San Timoteo, Gavilan
Area Plans and Subunits	Highgrove Area Plan: Subunit 1 Sycamore Canyon/Box Springs Central, Subunit 2 Springbrook Wash North
Criteria Cells	545, 634, 635, 719, 712
PQP conserved lands Object IDs	293, 294, 323, 778
Cores and Linkages	None
Survey Areas	Narrow Endemic Plants Survey Area 7
	Burrowing Owl Survey Area

Stephens' Kangaroo Rat HCP

The SKR HCP Sycamore Canyon Core Reserve Area, which is in the southeastern portion of the City (Figure 3.2-3), does not occur within the Fire Hazard Area of the City, as identified in the Public Safety Element. The foothill and mountain areas along the eastern, southern, and western edges of the City occur within the Fire Hazard Area and are within the SKR HCP Fee Area.

The Public Safety Element Update includes policies and implementing actions that aim to reduce the risk to the community and to ensure protection from foreseeable natural and human-caused

hazards, as described in Impact BIO-1 above. Public Safety Element Update policies and implementing actions could affect the fire control measures that are implemented by the City to reduce the risk of wildland fires within the Fire Hazard Area, such as brush-clearance activities. However, no specific infrastructure improvements or projects are identified in the Public Safety Element Update. As this is a policy document, this update would not have any significant direct or indirect impacts on any HCPs/MSHCPs. Impacts would be less than significant.

Policies related to environmental justice under the proposed Public Safety Element Update would not enable future development or the construction of new housing, public safety infrastructure, and mixed-use development. Rather, these policies describe treatment of hazardous materials associated with contaminated sites within environmental justice communities; access to affordable housing, health care, and emergency services; the needs of environmental justice communities in planning for emergency response and recovery; health implications for land use decisions that could involve hazardous uses; and the potential for vehicular and pedestrian accidents in underserved areas. Implementation of these policies would not affect any HCPs/MSHCPs.

Mitigation Measures

The potential impacts of the Project described in this section would be reduced to less-than-significant levels with implementation of the Mitigation Measure **MM-BIO-1 a**nd individual project-specific consistency with the WRC MSHCP, as described under Impact BIO-1.

3.3 Cultural Resources

3.3.1 Introduction

This section describes the environmental and regulatory setting for historical and archaeological resources for the Project and provides an analysis of the potential impacts on those resources that could occur as a result of implementation. For purposes of CEQA, cultural resources referred to as *historical resources* consist of intact built environment resources dating from the historic period (50 years old or older) and *archaeological resources*, which include prehistoric resources (pre-contact with Europeans) and historic resources (post-contact between Native Americans and Europeans). CEQA also uses the term *unique archaeological resources* to denote archaeological artifacts, objects, or sites that are not considered historical or archaeological resources but contain information needed to answer important scientific research questions, have a special and particular quality, or are directly associated with an important prehistoric or historic event or person (CEQA Section 21083.2(g)). The analysis methods, data sources, significance thresholds, and terminology used are described. Details on the location of the Project and a description of Project activities are included in Chapter 2*, Project Description*, of this EIR.

3.3.2 Environmental Setting

Natural Setting

The City of Riverside (City) is in the South Coast subregion of the southwestern California region and within the California Floristic Province (Baldwin et al. 2012). The natural vegetation of the subregion consists primarily of chaparral, sage scrub, annual grasslands, woodland, and riparian scrub and forest. Much of the natural vegetation occurs in preserved open space or fragmented patches in undeveloped areas.

The City is within the valley and foothills between the Santa Ana, San Bernardino, and San Jacinto Mountains. Major topographic features in the vicinity of the Project include the Estelle Mountains to the south, Santa Ana Mountains to the west, Box Spring Mountains to the immediate east, San Bernardino Mountains to the northeast, and San Jacinto Mountains to the southeast. Human activities and land use in the City have historically involved ranching, farming, and mining. The City is composed of primarily urban land uses (residential, commercial, office, industrial, and infrastructure) with smaller portions of the City consisting of farming lands, rural residential development, and open space, including conservation lands.

The topography of the City ranges from generally flat or gently sloping to areas of rugged terrain, rolling hills, and steep slopes. The more rugged terrain is confined primarily to the southern portion of the City, with the northern and central portions being composed of mainly flat lands. Elevations range from approximately 700 feet above mean sea level near the Santa Ana River to almost 1,400 feet above mean sea level west of La Sierra. Soils in the City consist primarily of well-drained loams, ranging from fine sandy loam to cobbly loam; they also include clay and gravelly loamy sand. The majority of the City is within the Santa Ana River Watershed, with a small portion of the eastern part of the City within the San Jacinto Valley Watershed. The major water feature in the City is the Santa Ana River, which runs roughly northeast to southwest along the City's northern border with the

community of Jurupa Valley. In addition, several arroyos and canals crossing the City including Riverside Canal, Sycamore Canyon, Gage Canal, Spring Brook River/Wash, Tequesquite Arroyo, Alessandro Arroyo, Prenda Arroyo, Woodcrest Arroyo, and Mockingbird Canyon, along with smaller unnamed earthen and concrete-lined drainages.

The majority of the undeveloped lands, open space, and conserved land is at the northern border of the City, along the Santa Ana River corridor, and in the undeveloped foothills, canyons, arroyos, and mountains of Sycamore Canyon Park, Mockingbird Canyon, and Alessandro Heights in the southern portion of the City. These open space areas contain native riparian, grassland, and scrubland habitats that support many native plants and animals, including special-status species and sensitive natural communities. These lands serve as wildlife corridors, which provide areas of undisturbed open space for regional wildlife migration between natural habitats, thereby promoting the proliferation of indigenous animal species. The remainder of the land cover types within the City are residential, commercial, and industrial, including infrastructure-related land cover.

There are nine major vegetation communities/land cover types within the City (Western Riverside County Regional Conservation Authority 2012): urban/developed (77 percent), agriculture (7 percent), grassland (6 percent), coastal sage scrub (7 percent), riparian scrub, woodland, and forest (2 percent), woodlands and forest (<1 percent), meadows and marshes (< 1 percent), rock outcrops (<1 percent), and water (<1 percent).

Archaeological Setting

Building on early studies and focusing on data synthesis, Wallace (1955, 1978) developed a prehistoric chronology for the Southern California coastal region that is still widely used today and is applicable to coastal and many inland areas, including Riverside County. Four periods are presented in Wallace's prehistoric sequence: Early Man, Milling Stone, Intermediate, and Late Prehistoric. In addition to Wallace's classic summary, a regional synthesis developed by Warren (1968) is referred to in the following discussion.

Early Man Period/San Dieguito (circa 10,000–6,000 B.C.)

When Wallace defined the Early Man Period in the mid-1950s, there was little evidence of human presence on the Southern California coast prior to 6000 B.C. Archaeological work in the intervening years has identified numerous older sites dating prior to 10,000 years ago, including ones on the coast and Channel Islands (e.g., Erlandson 1991; Rick et al. 2001:609; Johnson et al. 2002; Moratto 1984, 2004). The earliest accepted dates for occupation are from two of the northern Channel Islands, located off the coast from Santa Barbara. On San Miguel Island, Daisy Cave clearly establishes the presence of people in this area about 10,000 years ago (Erlandson 1991). On Santa Rosa Island, human remains have been dated from the Arlington Springs site to approximately 13,000 years ago (Johnson et al. 2002).

Recent data from inland as well as coastal sites during this period indicate that the economy was a diverse mixture of hunting and gathering. At near-coastal and inland sites, it appears that an emphasis on hunting may have been greater during the Early Man Period than in later periods; numerous Clovis-like or Folsom-like fluted points have been found in San Bernardino County along shorelines of Pleistocene lakes in the desert portion of the county. Common elements in many San Dieguito Tradition sites include leaf-shaped bifacial projectile points and knives, stemmed or shouldered projectile points (e.g., Silver Lake and Lake Mojave series), scrapers, engraving tools, and

crescents (Warren 1967:174–177; Warren and True 1961:251–254). Use of the atlatl during this period facilitated launching spears with greater power and distance. Subsistence patterns shifted around 6000 B.C. coincident with the gradual desiccation associated with the onset of the Altithermal, a warm and dry period that lasted for about 3,000 years.

Milling Stone/Encinitas Period (circa 6,000–3,000/1,000 B.C.)

The Milling Stone Period of Wallace (1955, 1978) and Encinitas Tradition of Warren (1968) are characterized by an ecological adaptation to collecting and by the dominance of small seed grinding. Milling stones, such as metates and slabs, and handstones, such as manos and mullers, occurred in large numbers for the first time, and were even more numerous near the end of this period. As indicated by their toolkits, people during this period practiced a mixed food-procurement strategy. Subsistence patterns varied somewhat as groups became better adapted to their regional or local environments. Milling Stone period sites are common in Southern California at many inland locations, including Prado Basin in western Riverside County and the Pauma Valley in northeastern San Diego County (e.g., True 1958; Herring 1968; Langenwalter and Brock 1985; Sutton 1993; Sawyer and Brock 1999).

During the Milling Stone Period and Encinitas Tradition, stone chopping, scraping, and cutting tools were abundant and generally made from locally available raw material. Projectile points, which are rather large and generally leaf-shaped, and bone tools such as awls were generally rare. The large points are associated with the spear, and probably with an atlatl. Items made from shell, including beads, pendants, and abalone dishes, are generally rare as well. Evidence of weaving or basketry is present at a few sites. Kowta (1969) attributes the presence of numerous scraper-planes in Milling Stone sites to the preparation of agave or yucca for food or fiber. The mortar and pestle, associated with the vertical motion of pounding foods, such as acorns, were introduced during the Milling Stone Period, but were not common.

Koerper and Drover (1983) suggest that Milling Stone Period sites reflect migratory settlement patterns of hunters and gatherers who used marine resources during the winter and inland resources the remainder of the year. More recent research indicates that residential bases or camps were moved to resources in a seasonal round (de Barros 1996; Mason et al. 1997; Koerper et al. 2002), or that some sites were occupied year-round, with portions of the village population leaving at certain times of the year to exploit seasonally available resources (Cottrell and Del Chario 1981). Regardless of settlement system, subsistence strategies during the Milling Stone Period included hunting of small and large terrestrial mammals, marine mammals, and birds; collecting of shellfish and other shore species; extensive use of seed and plant products; processing of yucca and agave; and near-shore fishing (Reinman 1964; Kowta 1969). Characteristic mortuary practices during the Milling Stone Period or Encinitas Tradition included extended and loosely flexed burials interred beneath cobble or milling stone cairns. Some burials contain red ochre and few grave goods, such as shell beads and milling stones. “Killed” milling stones, exhibiting purposely made holes, may occur in the cairns.

Intermediate Period (circa 3000/1000 B.C.–A.D. 500)

Wallace’s Intermediate Period and Warren’s Campbell Tradition date from approximately 3000 B.C. to A.D. 500. This era is characterized by a shift toward a hunting and maritime subsistence strategy along with a wider use of plant foods. During the Intermediate Period, there was a pronounced trend toward greater adaptation to regional or local resources. For example, chipped stone tools suitable

for hunting were more abundant and diversified, and shell fishhooks became part of the toolkit during this period. Larger knives, a variety of flake scrapers, and drill-like implements are common in deposits dating to this period. Projectile points include large side-notched, stemmed, and lanceolate or leaf-shaped forms. Koerper and Drover (1983) consider Gypsum Cave and Elko series points, which have a wide distribution in the Great Basin and Mojave Deserts between circa 2000 B.C. and A.D. 500, to be diagnostic of this period. Bone tools, including awls, were more numerous than in the preceding period, and the use of asphaltum adhesive was common as well.

Mortars and pestles, used for processing acorns, became more common during this period, gradually replacing manos and metates as the most abundant milling stone implements. In addition, hopper mortars and stone bowls, including steatite vessels, appear to have entered the toolkit at this time. This shift appears to correlate with a diversification in subsistence resources. Many archaeologists believe this change in milling tools signals a shift away from the processing and consuming of hard seed resources to the increasing importance of the acorn (e.g., Glassow et al. 1988; True 1993).

Characteristic mortuary practices during the Intermediate Period include fully flexed burials placed face down or face up and oriented toward the north or west (Warren 1968:2–3). Red ochre is common, and abalone shell dishes are infrequent. Interments sometimes occur beneath cairns or broken artifacts. Shell, bone, and stone ornaments, including charmstones, were more common than in the preceding Encinitas Tradition. Some later sites include olive shell (*Olivella* spp.) and steatite beads, mortars with flat bases and flaring sides, and a few small points. The broad distribution of steatite from the Channel Islands and obsidian from distant inland regions, among other items, attests to the growth of trade, particularly during the latter part of this period.

Late Prehistoric Period (circa A.D. 500–A.D. 1769)

Wallace (1955, 1978) places the beginning of the Late Prehistoric Period around A.D. 500. In all chronological schemes for Southern California, the Late Prehistoric Period lasts until European contact occurred in A.D. 1769. During the Late Prehistoric Period, there was an increase in the use of plant food resources and in land and marine mammal hunting. There was a concurrent increase in the diversity and complexity of material culture during this period, demonstrated by more classes of artifacts. The recovery of a greater number of small, finely chipped projectile points, usually stemless with convex or concave bases, indicates an increased use of the bow and arrow—rather than the atlatl and dart—for hunting. Cottonwood series triangular projectile points in particular are diagnostic of this period (Koerper and Drover 1983). Other items include steatite cooking vessels and containers, the increased presence of smaller bone and shell circular fishhooks, perforated stones, arrow shaft straighteners made of steatite, a variety of bone tools, and personal ornaments made from shell, bone, and stone. Ceramics were introduced during this time period and pottery jugs, bowls, and smoking pipes become increasingly common.

Late Prehistoric Period sites contain complex objects of utility, art, and decoration. Ornaments include drilled whole Venus clam (*Chione* spp.) and drilled abalone. Steatite effigies become more common, with scallop (*Pecten* spp. and *Argopecten* spp.) shell rattles common in middens. Another feature typical of Late Prehistoric Period occupation is an increase in the frequency of obsidian in site assemblages, especially imported from the Obsidian Butte source in Imperial County. Much of the rock art found today is thought to date to this period (Whitley 2000:41). Mortuary customs were elaborate, including cremation and interment with abundant grave goods.

During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages (Wallace 1955:223). Large populations and, in places, high population densities were characteristic, with some coastal and near-coastal settlements containing as many as 1,500 people. Many of the larger settlements were permanent villages where people resided year-round. The populations of these villages may have also increased seasonally. In areas of Los Angeles, Orange, western Riverside, and southwestern San Bernardino Counties, changes (introduction of cremation, pottery, and small triangular arrow points) are thought to have resulted from Takic migration to the coast from inland desert regions. This Takic or Numic Tradition was formerly referred to as the "Shoshonean wedge" or "Shoshonean intrusion" (Warren 1968).

Ethnohistoric Setting

The City is near an ethnographic transition zone between multiple Native American tribes including the Gabrielino/Tongva, Serrano, Luiseño, and Cahuilla. All four tribes are speakers of Takic languages, which are part of the Uto-Aztecan linguistic stock. Because the Project, including the boundaries of the City and individual Opportunity Sites, occupies a transitional zone among these tribes, it is necessary to consider all four tribes to fully understand the occupation history of the City and adjacent region.

Gabrielino/*Tongva*

A portion of the current boundaries of the City was occupied by the Native American tribe known as the Gabrielino/*Tongva*. The name Gabrielino denotes the people who were associated with the Mission San Gabriel. The post-contact name does not reflect how these people would have identified themselves, and in recent times descendants of this group have referred to themselves as *Tongva*. The Gabrielino language is one of a group of Californian Uto-Aztecan languages that have been designated as Takic (Bean and Smith 1978a:538). Linguistic analysis suggests that Takic-speaking immigrants from the Great Basin may have moved into Southern California around 500 B.C. (Kroeber 1925:579). The Gabrielino occupied much of present-day Los Angeles and Orange Counties and some portions of San Bernardino and Riverside Counties (McCawley 1996:3). The total area of the Gabrielino mainland territory exceeded 3,886 square kilometers (1,500 square miles). Gabrielino chieftanship was hereditary.

By 1500 before present (B.P.), the Gabrielino had established permanent villages along rivers and streams (Bean and Smith 1978a:540). Johnston (1962:123) observed that large Gabrielino village sites were located at the mouths of canyons with flowing streams. McCawley (1996:26) suggests that permanent settlements were located at the intersection of two or more environmental zones, such as the prairie-foothill transition zone, elevated locations near water courses, and sheltered bays and inlets. Site types included primary residential villages, hunting and gathering areas, ritual sites, and special use locations (McCawley 1996:25). Important food resources in the region included acorns, sage, yucca, deer, numerous small rodents, cactus fruit, and a variety of plants, animals, and birds associated with freshwater marshes (McCawley 1996:26). A wide variety of tools and implements were used by the Gabrielino/*Tongva* to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Foods were processed with a variety of tools, including hammer stones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks.

The fundamental economy of the Gabrielino/*Tongva* was one of subsistence gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal environmental zones. Deceased individuals were either buried or cremated (Harrington 1942; McCawley 1996). Cremation was the standard practice for the mainland Gabrielino/*Tongva* during the contact period.

Serrano

The Serrano were originally a relatively small group located within the San Bernardino and Sierra Madre Mountains, and the term "Serrano" has come to be ethnically defined as the name of the people in the San Bernardino Mountains (Kroeber 1925:611). The Serrano language is part of the Serran division of a branch of the Takic family of the Uto-Aztecan linguistic stock (Mithun 2004:539, 543). The two Serran languages, Kitanemuk and Serrano, are closely related. The Serrano occupied an area in and around the San Bernardino Mountains between approximately 1,500 and 11,000 feet above mean sea level. Their territory extended west into the Cajon Pass, east as far as Twentynine Palms, north past Victorville, and south to the Yucaipa Valley. Year-round habitation tended to be located out on the desert floor, at the base of the mountains, and up into the foothills, with all habitation areas requiring year-round water sources (Kroeber 1908a; Bean and Smith 1978b). Most Serrano lived in small villages near water sources (Bean and Smith 1978b:571). Houses measuring 12 to 14 feet in diameter were domed and constructed of willow branches and tule thatching.

The subsistence economy of the Serrano was one of subsistence hunting and collecting plant goods, with occasional fishing (Bean and Smith 1978b:571). Large and small animals were hunted, including mountain sheep, deer, antelope, rabbits, small rodents, and various birds, particularly quail. Plant staples consisted of seeds; acorn nuts of the black oak; pinon nuts; bulbs and tubers; and shoots, blooms, and roots of various plants, including yucca, berries, barrel cacti, and mesquite. Fire was used as a management tool to increase yields of specific plants, particularly chia. Trade and exchange were important aspects of the Serrano economy. Those living in the lower-elevation desert floor villages traded foodstuffs with people living in the foothill villages who had access to a different variety of edible resources.

Mainly due to the inland territory that Serrano occupied beyond Cajon Pass, contact between Serrano and Europeans was relatively minimal prior to the early 1800s. As early as 1790, Serrano began to be drawn into mission life (Bean and Vane 2002). More Serrano were relocated to Mission San Gabriel in 1811 after a failed indigenous attack on that mission. Most of the remaining western Serrano were moved to an *asistencia* built near Redlands in 1819, where they provided much of the labor to establish the Mill Creek Zanja that irrigated much of the land between present day Mentone and the *asistencia* (Bean and Smith 1978b:573). By 1834, most western Serrano had been moved to the missions, with some Serrano possibly moved to the mission at San Fernando Rey (Kroeber 1908b). Only small groups of Serrano remained in the area northeast of the San Gorgonio Pass and were able to preserve some their native culture. In the 1860s, a smallpox epidemic decimated many indigenous Southern Californians, including the Serrano (Bean and Vane 2002). Surviving Serrano sought shelter at Morongo with their Cahuilla neighbors; Morongo later became a reservation (Bean and Vane 2002). Other survivors followed the Serrano leader Santos Manuel down from the mountains and toward the valley floors, and eventually settled what later became the San Manuel Band of Mission Indians Reservation. This reservation was established in 1891.

Cahuilla

The Cahuilla settled in a territory that extended west to east from the present-day City to the central portion of the Salton Sea in the Colorado Desert, and south to north from the San Jacinto Valley to the San Bernardino Mountains. Evidence suggests the Cahuilla migrated to Southern California about 2,000 to 3,000 years ago, most likely from the southern Sierra Nevada ranges of east-central California with other related socio-linguistic (Takic-speaking) tribes (Moratto 1984:559). Cahuilla villages were usually in canyons or on alluvial fans near accessible water such as springs or where large wells could be dug. Major religious ceremonies of the clan were held in a separate ceremonial house. Houses and ancillary structures were often spaced apart, and villages typically spread over a mile or two.

The Cahuilla used more than 200 desert and mountain plants (Bean and Saubel 1972). Though 60 percent of Cahuilla territory was in the Lower Sonoran Desert environment, 75 percent of their diet came from plant resources acquired in Upper Sonoran and Transition environmental zones (Bean 1978). Key plant foods included acorns, screwbean and honey mesquite, pinon nuts, prickly-pear cactus fruit and leaves, and yucca blossoms and stalks. The Cahuilla employed a wide variety of tools and implements to gather and collect food resources. Hunting was achieved using the bow and arrow, traps, nets, slings, and blinds for land mammals and birds and nets for fish when Lake Cahuilla was filled. Food processing was achieved using a variety of tools: portable and bedrock mortars, basket hopper mortars, pestles, manos and mutates, bedrock grinding slicks, hammerstones and anvils, woven strainers and winnowers, leaching baskets and bowls, woven parching trays, knives, bone saws, and wooden drying racks. Pottery was initially introduced to the Cahuilla during the Late Prehistoric Period, and the art of ceramic production was later adopted by the Cahuilla, who used the paddle and anvil technique.

Asistencias were established near Cahuilla territory at San Bernardino and San Jacinto by 1819. Interaction with Europeans was less intense in the Cahuilla region than for coastal tribes because the topography and paucity of water rendered the inland area inhabited by the Cahuilla unattractive to colonists. By the 1820s, however, the Pass Cahuilla experienced consistent contact with the ranchos of Mission San Gabriel, whereas the Mountain Cahuilla frequently received employment from private rancheros and were recruited to Mission San Luis Rey. Mexican ranchos were located near Cahuilla territory along the upper Santa Ana and San Jacinto Rivers by the 1830s, providing the opportunity for the Cahuilla to earn money ranching and to learn new agricultural techniques. The expansion of immigrants into the region introduced the Cahuilla to European diseases. By 1891, only 1,160 Cahuilla remained within what was left of their territory, down from an aboriginal population estimated at 6,000 to 10,000 (Bean 1978:583–584). Between 1875 and 1891, the United States established ten reservations for the Cahuilla within their territory: Agua Caliente, Augustine, Cabazon, Cahuilla, Los Coyotes, Morongo, Ramona, Santa Rosa, Soboba, and Torres-Martinez (Bean 1978:585). Four of these reservations are shared with other Native American tribes, including the Chemehuevi, Cupeno, and *Serrano*.

Luiseño

The name Luiseño was created by non-Native people and refers to those Takic-speaking people who were associated with that mission (Bean and Shipek 1978:550). The Luiseño language group is a Takic language that comes from the Cupan branch of the Uto-Aztecan language family. The Luiseño ancestral territory included approximately 1,500 square miles. Along the coast, it extended from Agua Hedionda Creek on the south to near Aliso Creek on the northwest (Bean and Shipek

1978:550). Their territory extended inland to Santiago Peak, east to the Elsinore Valley, and south to east of Palomar Mountain. Their territory included most of the drainages of the San Luis Rey and the Santa Margarita Rivers.

Luiseño clans settled in valley, foothill, coastal, and mountain areas, providing them with the resources of many different ecological niches. Individual lineages or families owned specific resource areas within the clan territory. Most inland clans also owned fishing and gathering sites on the coast, to allow for fishing and shellfish collecting (Bean and Shipek 1978:551). However, most of the Luiseño foods were available in locations within a day's travel of the village (Bean and Shipek 1978:551). The principal game animals were deer, rabbit, jackrabbit, woodrat, mice, ground squirrels, antelope, valley and mountain quail, doves, ducks, and other birds. Most predators were avoided as food as were tree squirrels and most reptiles. Coastal marine foods included sea mammals, fish, crustaceans, and mollusks (especially abalone). Trout and other fish were caught in mountain streams (Bean and Shipek 1978:552). Acorns were an important food resource; six species were used (Bean and Shipek 1978:552). Acorns were harvested from just before the start of winter rains (Bean and Saubel 1972:121–131).

The Luiseño settlement pattern was seasonally based. In the winter, the larger clan coalesced into a shared habitation village and lived primarily on stored foods such as acorns. Beginning in the spring, the winter village group divided into smaller groups, with each group occupying and exploiting a small area where fresh vegetal resources could be gathered. Occasionally, journeys to the coast to collect shellfish may have occurred (White 1963). This breakup of the village group into family groups at the end of winter, after the stored fall crops were depleted, was a normal occurrence in hunter-gatherer societies and compensated for sparse spring resources, which were generally harder to find and less plentiful. At the end of summer and beginning of fall, a secondary base camp, frequently situated near an oak grove, was inhabited for 2 to 3 months for acorn collecting as well as hunting. These summer-fall camps were subdivisions of the primary winter camp and occupied by smaller subdivisions of the larger clan group.

Historic Setting

History for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Some researchers subdivide the American Period in various phases, such as 19th century (1848–1900), Early 20th century (1900–1950), and Modern Period (1950–present).

Spanish Period

In the 18th century, the Spanish colonized present-day California, establishing a tripartite system consisting of missions, presidios, and pueblos (Bean and Rawls 1968). History records the Spaniard Pedro Fages as the first European-American person to pass through the San Bernardino Valley in 1772. Four years later, Fr. Francisco Hermenegildo Garcés, "the famous and revered Franciscan missionary-explorer-martyr," entered the valley, seeking to plot a road that would connect Monterey with Sonora (Beattie and Beattie 1939:3). It would be another 30 years before the Spanish returned to the region.

As the chain of missions prospered, their livestock holdings increased and became vulnerable to theft. The Spaniards responded by planning inland missions that could provide additional security and establish a presence beyond the coast. Efforts to colonize and evangelize were continued by

Mission San Gabriel Arcángel, which established an estancia (rancho) at Puente at least by 1816 and further expanded its scope of operations by establishing the San Bernardino estancia at a site 1.5 miles east of Guachama in 1819. Other estancias in San Bernardino County soon followed at Agua Caliente and at the ranchos of Jucumba and Yucaipa (Beattie and Beattie 1939:12). The estancia at Guachama was intended to serve several purposes, one of which was to develop farming and teach the Cahuilla Indians about European agricultural methods. By 1821, couriers carried mail between Sonora and California on the Cocomaricopa Trail, which passed through the San Bernardino Valley.

Mexican Period

Mexico proclaimed its independence from Spain in 1821 and became a federal republic in 1824, with both Baja and Alta California classified as territories (Starr 2005). The Mexican Republic began to grant private land to citizens to encourage immigration to California. Huge land grant ranchos took up large sections of land in California. Between 1835 and 1846, the Mexican government made more than 600 land grants in California. The dons (rancho owners) dominated the economy and defined the society of Mexican California (Robinson 1948; Starr 2005). These men, their families, and rancho workers, often referred to as "Californios," practiced an agricultural pattern that included mixed stock raising and commercial agriculture on their vast landholdings (Jelinek 1999; Starr 2005).

In 1833, Mexico adopted the Secularization Act of 1833, by which the Mexican government privatized most of the Franciscans' landholdings, including their California missions. By 1836, this sweeping process effectively reduced the California missions to parish churches and released their vast properties. Although earlier secularization plans had called for redistribution of lands to the Native American neophytes, who were responsible for construction of the mission empire, the Mexican government instead redistributed mission lands and livestock holdings through land grants to Mexican ranchers (Langum 1987:15–18).

American Period

In 1848, the signing of the Treaty of Guadalupe Hidalgo at the end of the war between Mexico and the United States gave control of California to the United States. The acquisition of California by the United States and the discovery of gold in 1849 drew many Euro-Americans into California (Robinson 1948). In 1850 California became a state subsequently divided into 27 counties. However, the great population influx of that period was limited primarily to central California, San Francisco, and the Gold Rush region of the Sierra Nevada. Southern California grew slowly during this time.

Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the Southern California economy through the 1850s. Cattle were no longer desired mainly for their hides, but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from Southern to Northern California to feed that region's burgeoning mining and commercial boom. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, and then transported by trains where available. The cattle boom ended for Southern California as neighboring states and territories drove herds to Northern California at reduced prices. Operation of the huge ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 1941:102–103).

Riverside County

In 1859, the first U.S. Post Office in what would become Riverside County was established at John Magee's store on Temecula Rancho (Gunther 1984:526). The first major population boom in Southern California followed completion of the Southern Pacific Railroad connection from Sacramento and the transcontinental Central Pacific Railroad route south to Los Angeles in 1874 (Lech 2012). The railroad brought land speculators, developers, and agriculturalists into the region, including Riverside and surrounding areas that seemed most fit for agricultural development.

In 1870, Judge John Wesley North and a group of associates founded Riverside on part of Rancho Jurupa. Residents planted the first orange trees in Riverside County in 1871, but the citrus industry began 2 years later when Eliza Tibbets received two Brazilian navel orange trees from a friend at the Department of Agriculture in Washington. The trees thrived in the Southern California climate, and the navel orange industry grew rapidly, supported by extensive irrigation projects. By 1882, California had more than half a million citrus trees, almost half of which were in Riverside County. With the agricultural boom that the navel orange provided, the City grew rapidly during the 1880s. On May 9, 1893, Riverside County was officially formed from portions of San Bernardino County and San Diego County (Patterson 1971). The citrus boom created a number of fortunes in the City and, according to the Bradstreet Index, in 1895 the City became the wealthiest jurisdiction per capita in the United States (Patterson 1971).

During World War I, the federal government established a military presence in Riverside County. The U.S. Army constructed March Field, now March Air Reserve Base, to train aviators. The base increased in size during World War II, adding Camp Haan and a third facility, Camp Anza. Over the decades, new residents populated new towns such as Murrieta, Wildomar, and Lake Elsinore. Eastvale, Norco, and unincorporated areas within the county south of Corona zoned lots with enough acreage for "ranchettes" and permitted horse keeping. Civic activities with equestrian themes became a feature of towns and neighborhoods within the county area and towns south of the City (County of Riverside 2010; March Air Reserve Base n.d.). The bulk of the county remained agricultural into the 1960s and 1970s, when real estate development activity began to occur (ICF 2012).

City of Riverside

In 1870 John North, E. G. Brown, A. J. Twogood, and James Greves moved to California to purchase land for the development of "a colony of industrious people to engage in the culture of semitropical fruits and grapes for the manufacture of raisins" (Greves 2002:21). After researching areas to establish this colony in Southern California, the group decided to purchase land from the Silk Culture Association in what would later become the City (Greves 2002; Lech 2007). Construction of the first irrigation canal began in October of 1870 and was completed in July of 1871. A larger system of canals was designed and planned for the area. At a meeting, the colony's residents adopted the name Riverside. Within a year they established a church, a schoolhouse, a hardware store, and residences. Growth occurred relatively slowly but steadily over the next several years as Riverside attracted more families and entrepreneurs.

With the construction of other irrigation systems, particularly the Gage Canal in 1886, the community saw rapid expansion through the 1880s. Eventually, the Atchison, Topeka and Santa Fe Railway and the Southern Pacific Railroad each extended lines into Riverside. The extension of rail lines into Riverside and the subsequent opening of markets to the east meant higher profits for the

various agricultural enterprises as the costs of transport decreased significantly. Packing houses were erected, and the Annual Citrus Fair attracted nationwide interest. The 1884 World's Fair in New Orleans proved a windfall for the Riverside citrus industry. In this event, oranges from the City won several gold medals, boosting the prominence of the Riverside citrus industry throughout the country (Holmes 1912).

In 1885, California's Secretary of the State granted the City status as an official government and city. Riverside and surrounding counties were originally divided between Los Angeles and San Diego Counties; San Bernardino County formed in 1853. Originally part of San Bernardino County, Riverside County formed in 1893, and Governor Henry Markham subsequently confirmed the new county, with the City as the county seat. The City prospered through the 1920s with the development of the Riverside Land and Irrigation Company, and construction of transportation infrastructure and of numerous public works such as parks, a library, schools, hotels, and other private and municipal buildings. Fraternal organizations supported the development of such civic works and maintained strong business ties between their members. The operation of several streetcar companies allowed for the growth of suburban neighborhoods on the outskirts of Downtown Riverside. In 1926 officials developed a master plan to accommodate the expanding footprint of the City and the increase in automobile traffic (Lech 2007; Tibbet 2007).

While the depression of the 1930s hit the City hard, government programs such as those sponsored by the Civil Works Administration put residents to work constructing highways and improving infrastructure. The precursors to State Route 60, State Highway 395, and State Route 91 were all constructed during this time (Tibbet 2007). The federal government established March Airfield southeast of the City in 1918 to support the Army. In 1927 the Army expanded it and made it the Western Headquarters of Army Aviation. Because of its proximity and the number of people employed by and supporting the base, the City received numerous benefits such as the improvement of highways and accelerated housing construction. Personnel increased substantially at March Airfield through World War II, and the City also saw a boom in residential development with the return of veterans and the availability of Veterans Administration and Federal Housing Administration mortgages (Tibbet 2007). As with much of the rest of Southern California, the 1950s and 1960s saw large-scale residential development and a large increase in Riverside's population. In 1953, Riverside was reportedly the 15th fastest-growing city in the western United States. The University of California, Riverside opened in 1961, and La Sierra University followed in 1964. Eventually, the strong dependence on agriculture waned, and the vast orchards and agricultural fields that previously covered the landscape were replaced with housing tracts and industrial facilities.

Existing Conditions

Section 3.3.3, *Regulatory Setting,* outlines the City's types of historical resources and processes for modifications to both identified cultural resources and eligible cultural resources, as set forth in the City of Riverside Municipal Code, Title 20, *Cultural Resources Ordinance*. The map series (Figure 3.3-1a to Figure 3.3-1g) locates these various types of resources and demonstrates where they overlap with Opportunity Site locations. The maps also show where the Innovation District boundary encircles the resources. Appendix E lists the specific Historic Districts, potential Historic Districts, Landmarks, Structures of Merit, National Register of Historic Places (NRHP) sites, Neighborhood Conservation Areas, and surveyed areas that either coincide with an Opportunity Site or fall within the Innovation District boundary.

In sum, Opportunity Sites are currently present at the following historical resources:

- 6 Historic Districts
- 1 Potential Historic District
- 10 Landmarks
- 43 Structures of Merit
- 3 NRHP Sites
- 1 Neighborhood Conservation Areas
- 10 surveyed areas

The Innovation District encompasses a larger pool of historical resources, which are summarized below. Note that these resources are not necessarily proposed as Opportunity Sites. This is because specific development sites within the Innovation District are not identified in order to give the City maximum development flexibility in this area.

- 4 Historic Districts
- 1 Potential Historic District
- 47 Landmarks
- 367 Structures of Merit
- 15 NRHP Sites
- 2 Neighborhood Conservation Areas
- 4 surveyed areas

Note that surveyed areas are not subject to Certificates of Appropriateness (described in Section 3.3.3, *Regulatory Setting*) unless the property being developed was determined eligible for designation.

3.3.3 Regulatory Setting

Federal

Criteria for Evaluation for the National Register of Historic Places

Cultural resources are eligible for the NRHP if they have integrity and significance as defined in the regulations for the NRHP. Four primary criteria define significance; a property may be significant if it displays one or more of the following characteristics:

A. It is associated with events that have made a significant contribution to the broad pattern of our history; or

B. It is associated with the lives of people significant in our past; or

C. It embodies the distinct characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or it represents a significant and distinguishable entity whose components may lack individual distinction; or

Figure 3.3-1a

Locations Where Opportunity Site Is Present at Historic Districts

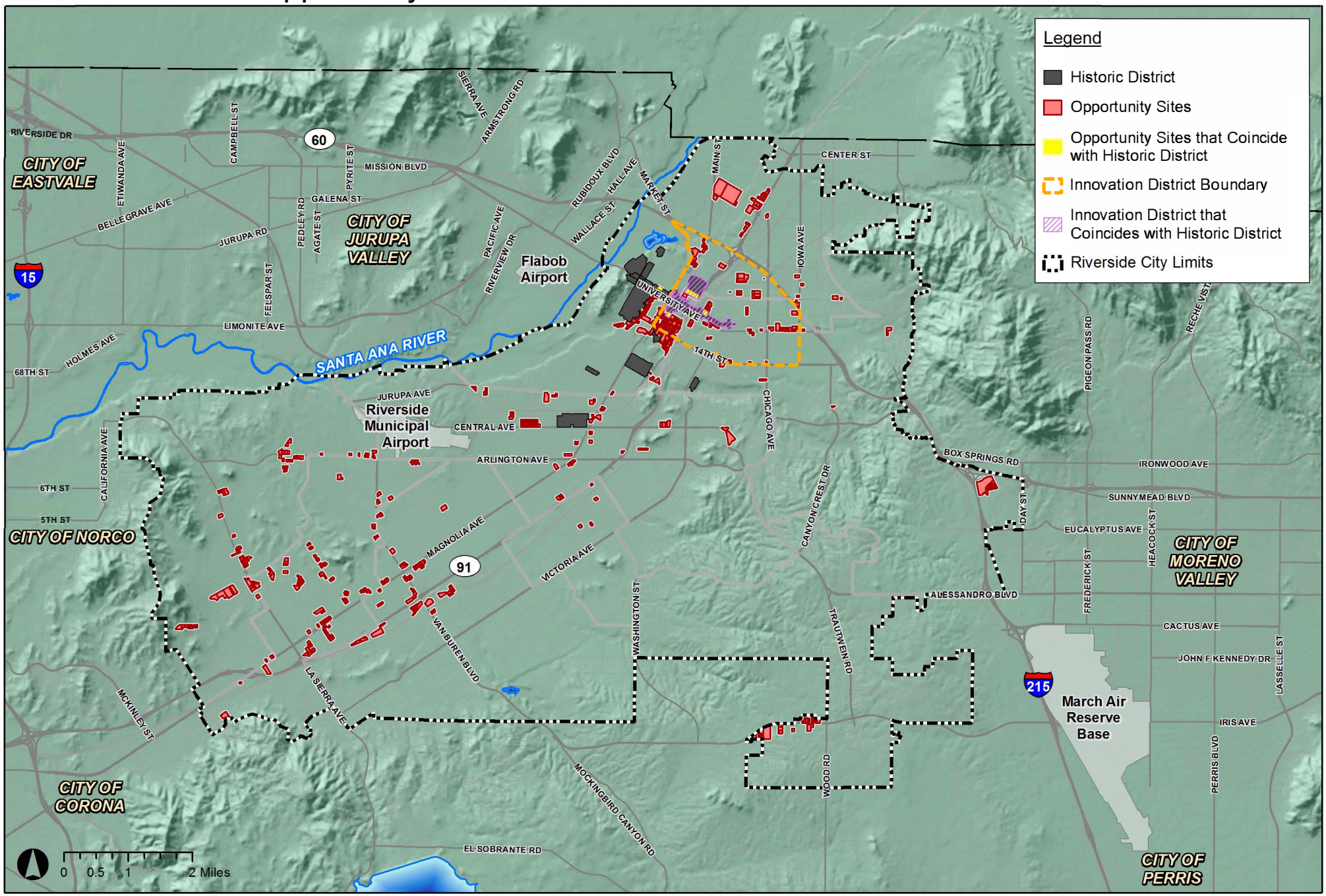


Figure 3.3-1b

Locations Where Opportunity Site Is Present at Potential Historic Districts

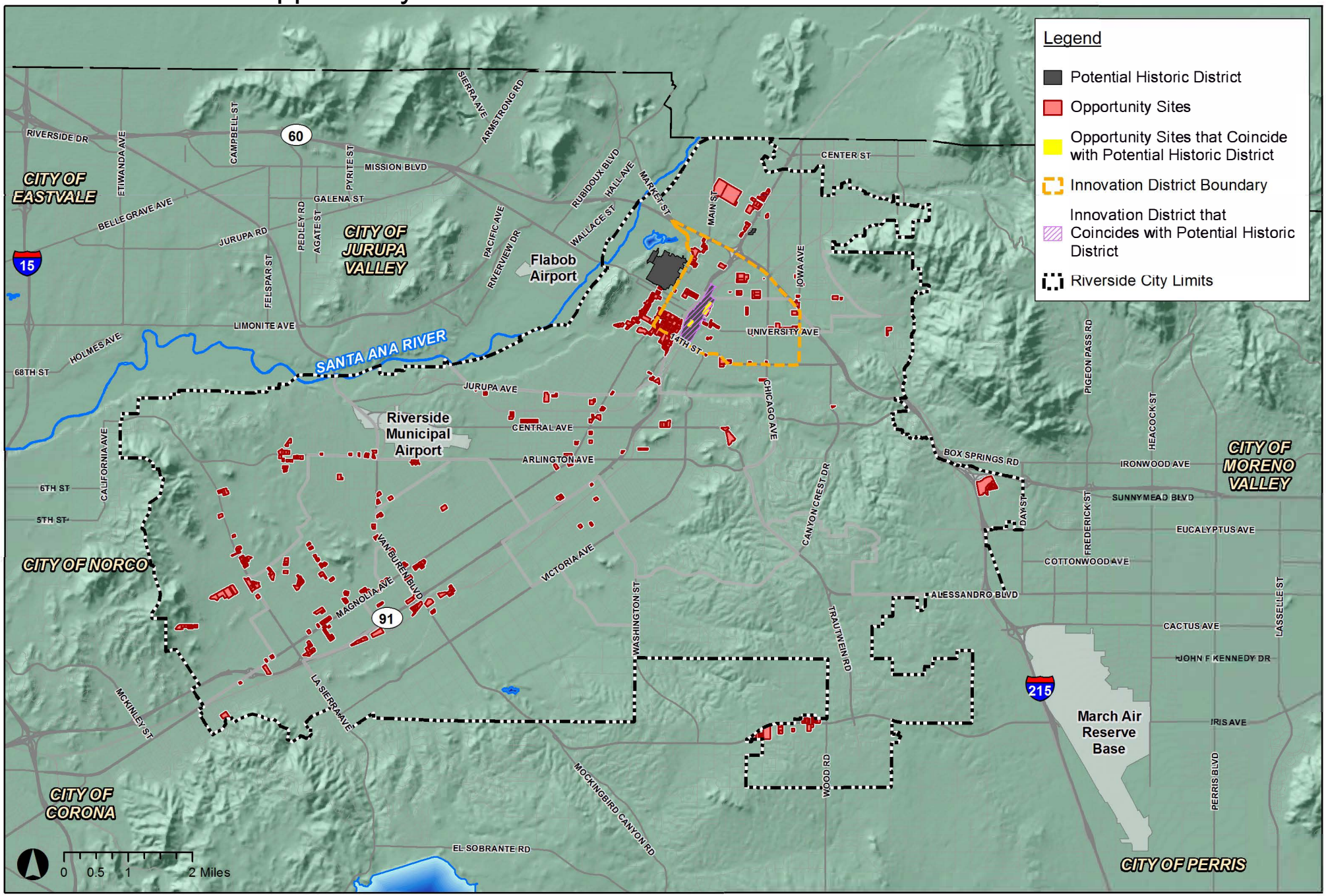


Figure 3.3-1c

Locations Where Opportunity Site Is Present at Landmarks

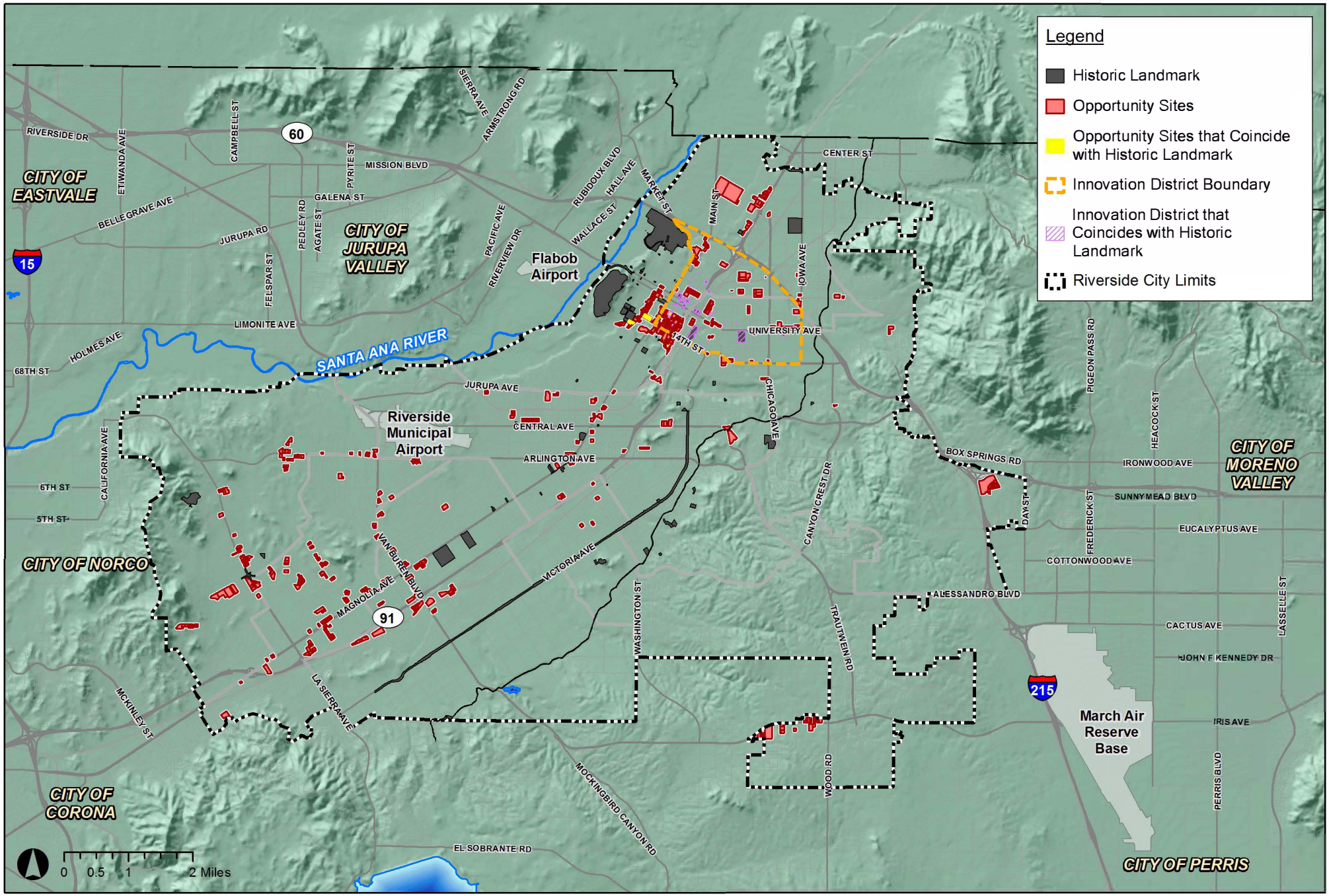


Figure 3.3-1d

Locations Where Opportunity Site Is Present at Structures of Merit

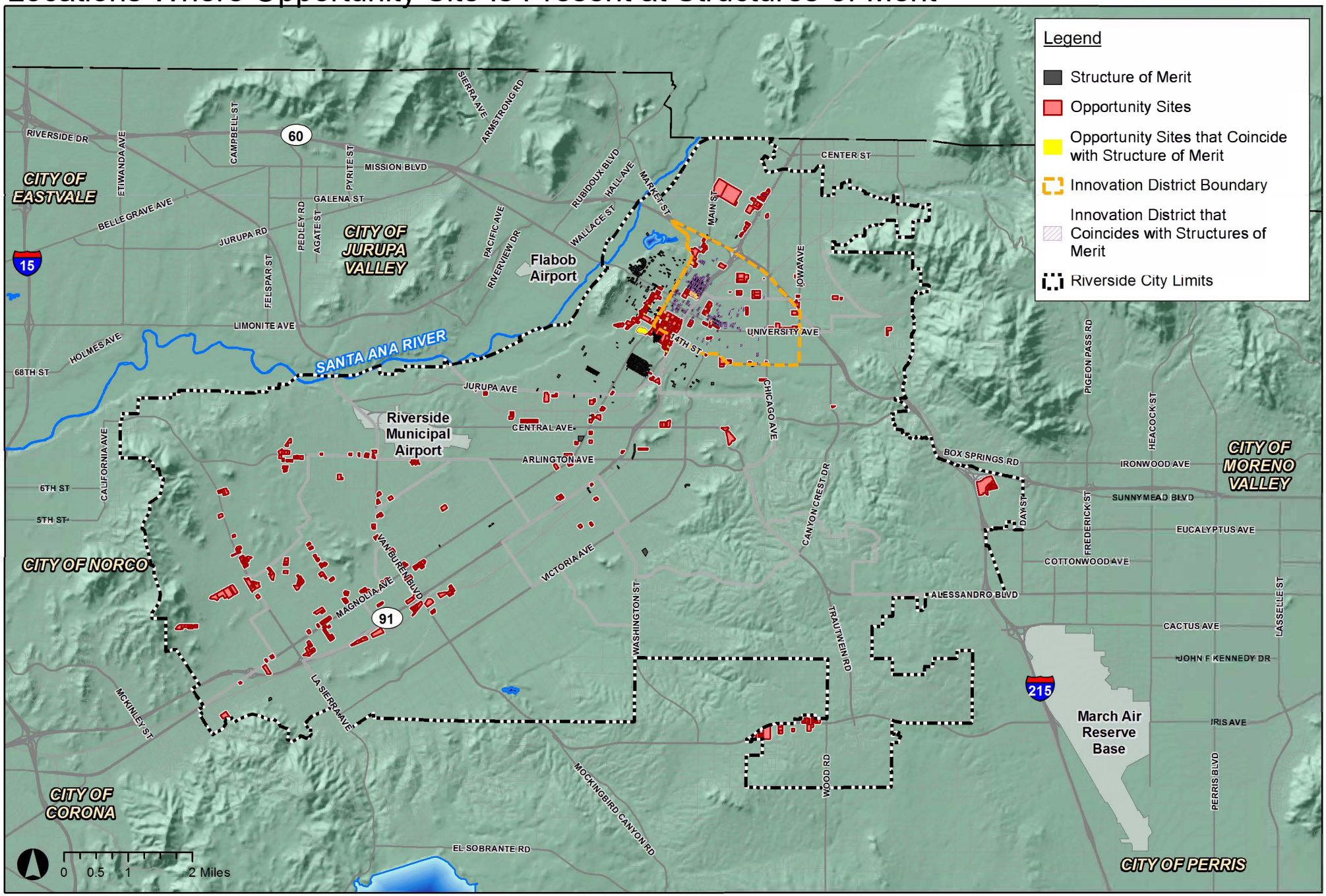


Figure 3.3-1e

Locations Where Opportunity Site Is Present at National Register of Historic Places Sites